

# COMPUTERWORLD

A Computerworld Special Report

## Users willing to ride Microsoft juggernaut

By Neal Weinberg, William Brandel and Stuart J. Johnston

**P**rofit growth at Microsoft Corp. is slowing. Delivery of major products is backing up. The U.S. Department of Justice is closely watching the company's competitive tactics.

Yet no company today compares to Microsoft, which dominates nearly every market it enters. Fewer still have had the vision or the broad agenda of Microsoft Chairman Bill Gates.

For information systems managers, Microsoft's impressive growth as an upstart PC software company is no longer a passing novelty. As the vendor strides into the role of major business software provider, it is also embarking on ventures such as on-line commerce and home banking software.

So something has to give. And it appears to be the users.

For better or worse, the relationship IS managers have with Microsoft is changing. According to an exclusive *Computerworld* survey **Microsoft, page 28**

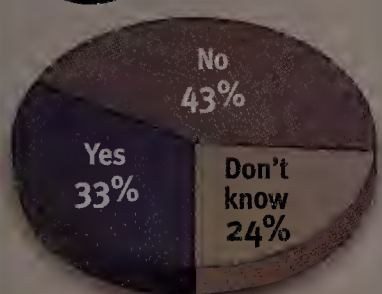


"We're only pursuing certain areas, and these are all super-competitive markets."

— Bill Gates  
Microsoft chairman and CEO



Do you think Microsoft is spreading itself too thin?



Base: 100 IS professionals

Source: Computerworld survey

## New switch hits

Cabletron blueprint sketches out ATM future

By Laura DiDio and Stephen P. Klett Jr.

After nearly a year without a major product announcement, Cabletron Systems, Inc. next Monday will unveil its high-speed Asynchronous Transfer Mode blueprint architecture. The move is expected to unleash a flood of related offerings in the next 18 months.

The new Cabletron architecture — code-named Synthesis — will provide the framework to migrate customers from traditional shared-hub and router-centric networks to the virtual switched and cell-based ATM networks of the future, sources close to the company said.

Synthesis is Cabletron's response to Cisco Systems, Inc.'s CiscoFusion and Bay

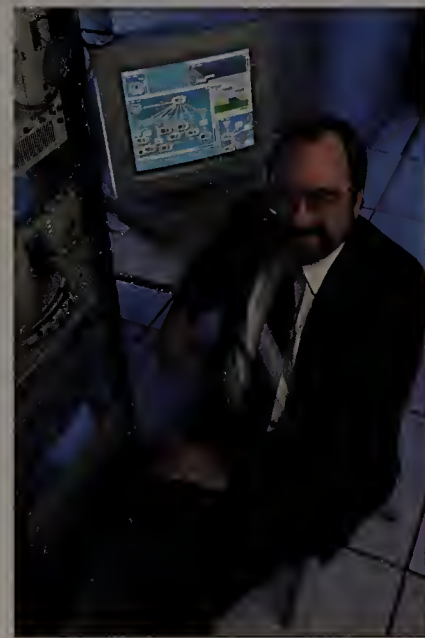
Networks, Inc.'s Baysis architectures, both of which rolled out last year.

The Synthesis product suite will provide users with scalability and a direct migration path to 155M bit/sec. OC-3 ATM. It will use Cabletron's Secure Fast Packet Switching engine when it becomes available in the third quarter, the sources said.

### More to come

First in a series of Synthesis products will be the ESX-1320 stand-alone Ethernet switch, slated to ship next month. The switch introduction will be closely followed by several ATM switches and modules for Cabletron's high-end switching hub, the MMAC-Plus.

The forthcoming ATM products are based on Cabletron's **Cabletron, page 127**



Lahey Clinic's Rick Graham: Stand-alone switch ideal for small sites

## Dictatorship 'insures' CIO's turnaround plan

By Julia King

Turnarounds require a dictator.

That's the No. 1 lesson Bill Eager, chief information officer at Community Mutual Insurance Co., learned after one year at the helm of what was arguably one of the most slipshod information systems organizations in the business.

When Eager arrived at Community Mutual in January 1994, payroll was the only production appli-



Community Mutual's Bill Eager: Tough-love management cuts costs, boosts IS status

cation of 40 that had undergone disaster recovery testing.

There was also a lot missing. For instance, there was no change control, no development methodology, no project discipline, no career development process and no formal test procedures.

Since then, Eager has imposed some decidedly heavy-handed IS ground rules at the

\$2.3 billion Cincinnati-based insurer. No one in IS can now spend **Dictatorship, page 16**

## Kodak snaps up portables

By Julia King

Hoping to improve a so-so customer service record and boost lagging sales force productivity, Eastman Kodak Co.'s second largest division is untethering its salespeople from their desktops.

In May, Kodak's Professional & Printing Imaging Division will begin rolling out notebook computers to about 230 salespeople. They



### Out of focus

Last week, Eastman Kodak reported a 91% plunge in fourth-quarter profit, to \$18 million.

now access customer information from corporate databases using home-based PCs.

In the past, Kodak salespeople have been handicapped by a lack of information about the individual customers who use their products. This is because the division sells primarily to distributors, processing labs and print and graphics shops, explained Jim Neitsche,

**Kodak, page 127**

## Intel distills mobile strategy

By Michael Fitzgerald

"Lower price, more features" may sound like a beer commercial, but Intel Corp. is brewing up a Pentium strategy designed to make this happen in the notebook market.

"It's going to be a bonanza out there," predicted Mike McGuire, an analyst at Dataquest, Inc. in San Jose, Calif. Other industry watchers agreed that Intel's push into the mobile market will mean higher-powered products at lower prices for corporate users.

"You're going to get a definite step up in technological advances for notebook users, and

there will be price pressure put on the market," said Dean McCarron, an analyst at Mercury Research in Scottsdale, Ariz.

"That is really good news. Now you don't have to make the trade-off of leaving all your work at work," said Joseph Ave, director of strategic technologies at PECO Energy Co. in Philadelphia. He was particularly pleased with the chance to get better performance in the \$3,000 to \$5,000 notebook range.

In response to exploding growth in the notebook market, Intel is making a concerted effort to bring its mobile chip development in line with

**Intel, page 15**





Finally.

Companies  
re-engineering  
IS processes: **6%**

Source: CSC Index, Inc.  
Survey of 497 North American companies

## WEAKLINKS

Several years into the re-engineering boom, surprisingly few IS groups have radically reconsidered how they do business. Analysts warn that spells trouble. See **Re-engineering the Workplace**, a quarterly special, on page 94.

### NEWS

■ As **Borland** gets set to launch its Delphi client/server development tool next week, developers say they are looking forward to the tool but are wary of the vendor's rocky finances. *Page 6*

■ **IBM's outsourcing unit** will provide information technology services to Denver-based Public Service Company of Colorado, and the utility will provide energy consulting to IBM. *Page 14*

■ Despite hype and euphoria, the **information superhighway** faces some tough hurdles, a government group says. *Page 20*

### COMPUTER INDUSTRY

■ **Oracle's** applications group is in for big changes because sales have not met expectations. *Page 36*

### DESKTOP COMPUTING

■ Vendors turn to **specialized service partners** in a bid to provide customers with better service at a better price. *Page 43*

■ In a test-drive of the Personal Oracle 7 database, **Howard Millman** finds the product is defined more by what it excludes than by what it includes. *Page 43*

### WORKGROUP COMPUTING

■ **Videoconferencing** announcements at ComNet focus on price, interoperability. *Page 53*

### ENTERPRISE NETWORKING

■ Encyclopaedia Britannica pursues an Inter-

net strategy to get its reference books more widely distributed. *Page 63*

### LARGE SYSTEMS

■ Digital customers adopt different strategies for getting off big iron — but sometimes they stick with it instead. *Page 73*

### APPLICATION DEVELOPMENT

■ Late database and development tools products force some users to turn to other vendors, while others employ work-arounds. *Page 81*

### MANAGEMENT

■ Common sense doesn't always come easily, as **Whirlpool** can attest. It took a new first-class Customer Quality Information System to reveal some design flaws. *Page 90*

### CAREERS

■ What do **job applicants** exaggerate about the most? Hands-on experience and their impact on a project's outcome. *Page 104*

■ IS careers in the **consumer electronics** industry. *Page 105*

### MARKETPLACE

■ Success with **personal digital assistants** often means demanding high degrees of customization from vendors but at a significant cost. *Page 116*

### COMMENTARY

■ **Charles Babcock** and **Bill Laberis** raise questions about the real-life risks on the Internet. *Pages 8 and 40*

■ **John Gantz** warns managers to factor extra training and support costs into their plans for Microsoft's Windows 95. *Page 41*

■ **Roger Sobkowiak** and **Ronald LeBleau** say managers must face the painful reality that some of their people can't make the transition to new technologies. *Page 41*

## Warehouse

Thinking about building a data warehouse? Better also think about scrubbing your data, upping your network capacity and freeing your staff to take on LOTS of internal development.

**woes**

See In Depth, page 101.

Calendar.....Page 91

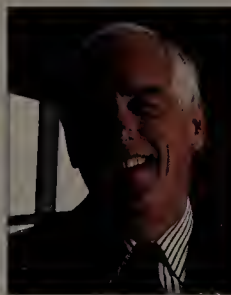
Company Index .....Page 124

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## Executive Briefing



David McKay  
Moore Business Forms

**Paper forms manufacturers** find they are in a life-and-death struggle to break in to the electronic forms market. To survive, they must leverage information technology and become **electronic service providers**, using their experience with how their customers use forms. *Page 87*

**Users in mixed Lotus' Notes and CC:Mail** environments wonder if they should upgrade to Notes rather than the client/server version of CC:Mail. *Page 2*

**Bank of Boston** is launching a \$30 million branch automation project based on client/server technology. *Page 4*. Meanwhile, **Chase Manhattan Bank** has rolled out a new trading floor with videoconferencing and high-speed networking. *Page 6*

**The Internet server market**, a Unix stronghold, will be expanded in the coming months as systems based on Microsoft's Windows NT platform hit the street. *Page 12*

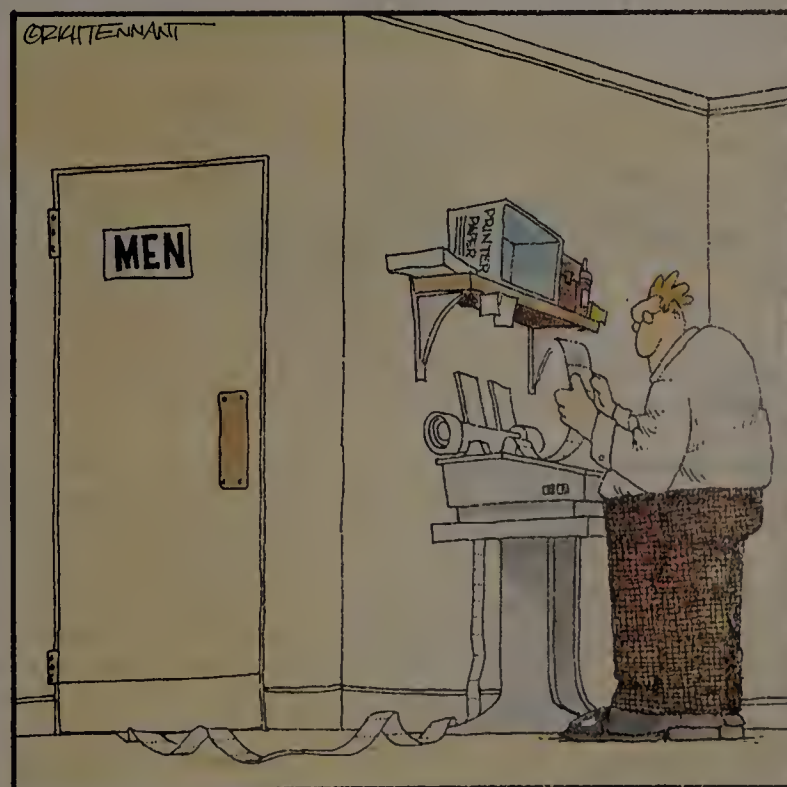
**IBM** delays some aspects of its high-end tape drive and readies new versions of its CICS transaction processing monitor. *Pages 14 and 73*

**As Martin Marietta** grows through merger and acquisition, its engineers are trying to deliver a more standardized user interface and application suite. *Page 53*

**Banyan users** are real fans of the technology, but they have to defend their choice in an increasingly Novell-centric world. *Page 63*

**The times they are a-changing for application development.** Traditional, mainframe-oriented methodologies are seen as inadequate for client/server systems with their disparate processing resources, networks and middleware. So, users are either building their own or evaluating vendors' methodologies designed specifically for client/server development. *Page 81*

## The 5th Wave by Rich Tennant



### How do you measure up?

How does your IS department compare with the Computerworld Premier 100? Fill out the Premier 100 survey, and we'll send you a free report showing how your operation compares with Premier 100 averages. Consolidated information from the surveys we collect may be published in a future Premier 100 issue. Send a request on company letterhead to Paul Gillin, Editor, Computerworld, 375 Cochituate Road, Framingham, Mass. 01701 or E-mail to survey@cw.com.







# The war is over. No more howitzer shells

coming at client/server groups from the glass house. No more client/server people lobbing grenades at the MIS staff. Not that peace is always as peaceful as you'd like it to be. Networks going down, bottlenecks popping up, people screaming about applications they can't get to. And a nasty feeling that nobody is really doing anything to help you with any of it. When, in reality, all of us at Legent are doing quite a lot. We've put together the most extensive set of industrial-strength, distributed systems management tools available. We've also developed an open architecture called XPE™ that lets our software work together across almost anything you can wire together, regardless of function or platform, from mainframes to UNIX servers to PC LANs. Which means you can manage your systems from the platform of your choice, something our customers tell us they're happily doing right now. It's not a silver bullet, but it can definitely help you do your job better. Besides, it's peacetime. Who needs bullets?

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# Users ponder switch from CC:Mail to Notes

By Suruchi Mohan

■ Gently but surely, Lotus Development Corp. is leading its band of followers toward the adoption of Notes.

The Cambridge, Mass.-based company denies it, but users in mixed Notes and CC:Mail environments are beginning to wonder if they should upgrade to Notes 4.0 and Notes Mail instead of going the CC:Mail client/server route.

"We're seeing enough convergence in CC:Mail and Notes that we're considering converting to Notes [and Notes Mail] in the next couple of years," said Brent Stilley, an analyst at Oklahoma State University in Stillwater. "The CC:Mail environment is closed, and we need to be able to integrate a voice-mail application on an Ericsson switch, which is easier in Notes."

"Looks like they're making CC:Mail a way to migrate to Notes, and Notes Mail [will] look like CC:Mail," said Kevin Amos, a support analyst at Placer Dome Canada Ltd. in Vancouver. "We may even drop CC:Mail."

Amos was referring to the user inter-

face of the Notes 4.0 client, slated to ship by midyear, which will be similar to that of the unreleased CC:Mail 3.0 client. The CC:Mail 3.0 client will work in a client/server environment. On the back end, the CC:Mail server will be the same as the Notes 4.0 server.

The change in the interface of the upcoming Notes 4.0 client removes another stumbling block in the adoption of Notes Mail, according to a user at a snack foods manufacturing company who requested anonymity.

"CC:Mail is easier to manage initially because of the learning curve with Notes," he said. However, as the number of post offices goes up, the administration goes up exponentially, he added. With Notes Mail, administrators do not have to manage the post office.

## Important question

Therefore, users trying to decide should ask themselves if the cost of migrating to a client/server environment from a file sharing environment is justifiable, said David Marshak, vice president of Patricia Seybold Group in Boston. "As the Notes product comes down in price, peo-

## Proposed migration from file-sharing CC:Mail to a client/server system

### On server:

CC:Mail DB6 post office

CC:Mail DB8 file-sharing post office

Notes CommServer or Notes 4.0 server

### On client:

CC:Mail 2.0

CC:Mail 3.0

As users ask for information sharing, move to...

Notes 4.0 client

ple will move" toward Notes, he said.

But large-scale migration will not be a bed of roses, even for those who want the improved connectivity that Notes provides.

Some companies have only recently invested large sums of money in deploying CC:Mail. Julio Duran, manager of customer support at Florida Power & Light Co. in Miami, said his organization just migrated from Profs and increased the

number of users from 7,000 to 9,000. Moving everyone over to Notes is something the utility has considered, but "our needs are based on business reason. To deploy a Notes client, we need more resources on the client" workstation, Duran said.

Current investment in CC:Mail will certainly be a factor in a company's decision to migrate, although with more and more users asking for information sharing, Notes makes sense. "Business units committed big time to CC:Mail are unlikely to go to Notes because of the price change," said a user at a large commercial bank in New York.

But Matthew Cain, a director at Meta Group, Inc. in Stamford, Conn., said price changes will prompt people to adopt Notes. Strategically, it makes sense for Lotus to entice users to use Notes because Notes offers a lot of the functionality that Microsoft Corp. is promising with Exchange and Windows 95. "In 1996, the CC:Mail client will become the Notes Express client," Cain said.

However, Julie Farris, a director at Lotus in Mountain View, Calif., said Lotus recently invested heavily in the CC:Mail file-sharing architecture, thereby showing its commitment to CC:Mail. Although Lotus uses Notes as the basis for its client/server technology, it is not nudging people to adopt Notes.

"We feel they'll go that way on their own, but we're not nudging," Farris said.

# Sun expands distributed net management

By Steve Moore and Jean S. Bozman  
NEW YORK

Counterpunching Hewlett-Packard Co.'s expanding presence in network management, SunSoft, Inc. last week announced a set of integrated network and systems management products that will give information systems managers greater control over distributed networks.

The Solstice platform includes 14 enterprise management applications for distributed Unix and PC systems. Only four major products were new with this announcement, however (see chart).

Pricing for some of the products has not yet been announced. Analysts said the key offering is Enterprise Manager, a distributed fault, event and performance management system geared to large companies.

Users welcomed Solstice's distributed functionality. "We want to be able to control our environment from anywhere in the world at any time," said Rupi S. Puri, senior vice president of global trading operations and technology at The Chase Manhattan Bank NA, which has Sun-based trading systems. "We want the flexibility to distribute management around the world."

But users also asked for multivendor

management capabilities. "What I'd like is a way to manage systems that is GUI-based, simple-minded and cross-platform so I could do administration the same way on [IBM] RS/6000s, HP/UX or Sun Solaris, without having to train people" on multiple platforms, said Jim Swanson, IS manager at CS First Boston

Electric Co. (PG&E) in San Francisco, said she would like to see a high level of integration among Solstice components. While PG&E is using mainframe-oriented automation tools to stitch some client/server tools together, she said, "we want to get out of the software development business on the systems side."

According to International Data Corp.'s (IDC) most recent figures on the network management market, HP's OpenView holds a market share of 28.6%, compared with Sun's 29.4% share with SunNet Manager and IBM's 10% share with NetView/6000. With Solstice to supplement SunNet Manager, Sun hopes to hold the high ground and outpace both IBM and HP.

"The challenge for Sun is to get back in the position of being a priority platform for new application development," said Rick Villars, a director at IDC. Sun's independent software vendors can now seek enterprise sales in addition to departmental sales, he added.

Based on technology from NetLabs, Inc. in Los Altos, Calif., the new object-oriented Enterprise Manager contains about 70% Sun code, officials at Sun said. However, Enterprise Manager will first

ship as an OEM version, with general release slated for this summer. And many of the new Solstice-branded applications — including SolarNet PC-Admin, Jump-Start and Backup — are versions of existing SunSoft products, Sun said.

## Ready to do battle

SunSoft's move came shortly after HP said the distributed version of its OpenView management platform would be delayed until mid-1996. "Last summer it looked like HP was ahead, but Sun is back, and this is now a very strongly competitive market," said James Herman, a vice-president at Northeast Consulting Resources, Inc. in Boston.

"This is an attempt by Sun to compete with a \$25 billion company," said David Wu, vice president of research at S. G. Warburg & Co. in New York. "Sun's top competitors are HP, HP and HP."

Villars said Sun's competitors currently hold no advantage in terms of application integration in their suites. "In a perfect world all of [the Solstice applications] would be highly integrated," he said, "but the reality is that they are not."

To counter criticism that its management offerings are Sun-centric, Sun said the company plans to port Enterprise Manager to HP/UX. Plans are also in the works to port certain SunNet Manager applications to Windows later this year.

Adding PCs makes Sun's platform more appealing to multivendor sites. "I'm pleased to see Sun drop their almost-religious pitch about Unix being a major player for workstations to run application clients on," said Mike Prince, MIS director at Burlington Coat Factory Warehouse Corp. in Lebanon, N.H.

## New in Sun's Solstice

Product	Function	Availability	Price
Solstice Enterprise Manager	Distributed multiuser management system for large networks	OEM now; general release in summer 1995	\$19,500
Solstice SunNet Manager	Domain manager based on Solaris or x86	Now	\$4,995
Solstice Cooperative Consoles	Links multiple SunNet Manager domains	Now	\$3,150
Solstice AutoClient	Automated desktop client configuration	April	\$2,495 (1 server and 10 client licenses)

in New York. CS First Boston is evaluating SunNet Manager and other management platforms, he added.

Multivendor management capability will come later this year with links to other vendors' net managers that exchange "key topology and event data," said Dennis Yaro, SunSoft's general manager of enterprise management products.

Nancy Wong, manager of computer and network operations at Pacific Gas &





UNIX has its advantages, but its System Sort isn't one of them. All it can do is sort ASCII text – slowly!

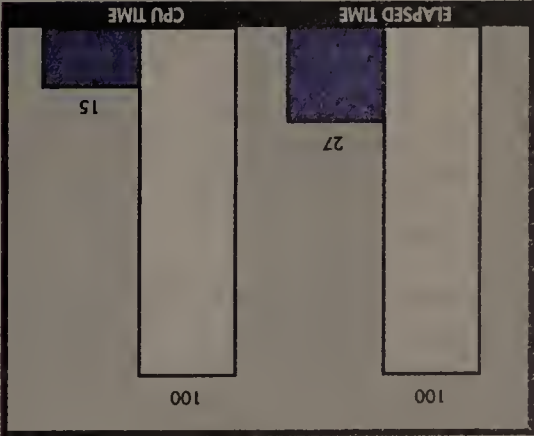
SyncSort provides the performance and functionality you need to make your commercial UNIX applications work.

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UNIX System Sort	RECORD FORMATS	
	Fixed length binary	YES
	Variable length binary	YES
UNIX System Sort	RECORD PROCESSING	
	Selection	YES
	Reformatting	YES
UNIX System Sort	COLLATING SEQUENCES	
	Standard ASCII	YES
	EBCDIC	YES
UNIX System Sort	User Defined	YES
	Multi-byte	YES

## FUNCTIONS

UNIX System Sort SyncSort



## PERFORMANCE

The UNIX System Sort

UNIX



# Networking comes home to NEST

By Laura DiDio

Don't look now, but file servers and networks may be moving into your spare bedroom or basement.

Novell, Inc.'s Extended Networks Division in Orem, Utah, will release a software developer's kit for Novell Embedded Systems Technology (NEST) this week that will bring computer networking into your home or even your car.

The forthcoming NEST developer's kit is another step in Novell's so-called "pervasive computing" strategy. The NEST developer's kit will enable independent software vendors to embed NetWare into any intelligent device, including automobiles and home appliances such as microwave ovens, VCRs, televisions and stereo receivers. Once these components are embedded with NetWare, they can be managed by a file server.

"I love it — the possibilities are endless. People will be able to tape movies, turn burglar alarms on and off, set their heating or even start the oven using simple file server commands," said Cheryl Currid, president of Currid & Co. in Houston.

Lisa Woods, a technical support spe-

cialist at DataSure Management Systems, a Novell independent software vendor in Auckland, New Zealand, agreed.

"It sounds very futuristic but viable at the same time. We're very interested in writing applications for the NEST" developer's kit, Woods said.

The developer's kit will have great appeal for DataSure's client base, which ranges from one to 20 users on a single LAN.

## Commuter's dream

"More and more users are commuting between their homes and offices, and this is certainly a much cheaper alternative than having a full-blown NetWare LAN installed in your basement," Woods said. "Having this type of functionality at home will certainly make life more interesting and easier."

Sources close to Novell said the company has already begun shipping the NEST developer's kit to many of its OEM partners.

"This means that end users can expect to see enabling software packages based on NEST shipping in the next 12 to 18 months," the source said.

Still, Currid and other independent software developers tempered their enthusiasm with some healthy cynicism, noting that the actual software is not yet available.

But the ability to use file servers to manage home consumer-type networks



could usher in a new market niche: the tiny-area network, or TAN, Currid said. "The question is when, not if, such products will be available," she said. "Conceptually, I'm in Novell's court, but realistically, I have to reserve judgment until

some actual software hits the market."

Currid noted that TANs have already begun to catch on with Japanese consumers. Many upscale apartment buildings and hotels in Tokyo are already outfitted with keypads that let residents perform such everyday tasks as setting the temperature controls for heating and air conditioning systems, starting the oven or turning off the lights.

One big caveat to pervasive consumer networking is cost.

Pricing on the NEST software developer's kit was not available at press time, but Currid said the cost of the software packages and setting up a TAN need not be prohibitive.

"A 386 computer with a large hard drive makes a marvelous file server," she said. "In a small office or home network, I would defy anyone to see any noticeable difference in response time between a 386 and a Pentium-based server."

A Novell spokesperson declined to comment on any of the specifics of the forthcoming NEST developer's kit announcement.

**Banyan Vines users cope** in a NetWare-centric world. See page 63.

# Bank of Boston plays technological catch-up

## Company launches \$30 million branch automation project

By Thomas Hoffman

After years of successful expansion into foreign exchange trading and private banking products, Bank of Boston Corp. has decided to focus its energies closer to home, starting with a forthcoming \$30 million branch automation project.

And even though the \$39 billion (in assets) bank leads the New England consumer deposits market with an 11% share, several analysts said Bank of Boston will have to use its business savvy and technical wherewithal to withstand the encroachment of Boston-based BayBanks, Inc. and Hartford, Conn.-based Shawmut National Corp.

## Stiff competition

Bank of Boston "has been trumpeting their market share gains, but BayBanks has been the most innovative in applying technology to the retail markets," said Laura Stuart, president of Stuart Research, a Cambridge, Mass., consultancy. "That doesn't mean BayBanks' customers necessarily have the highest level of perceived service, but Bank of Boston and Shawmut are certainly playing [technological] catch-up."

For example, BayBanks last year introduced an L. L. Bean-style catalog of banking products, and customers can call an 800 number to inquire about specific offerings. Not to be outdone, Shawmut recently introduced interactive video kiosks in the Boston area that allow customers to talk face-to-face with specialized customer services representatives over videoscreens, said Deborah Williams, an analyst at The Tower Group, a Wellesley, Mass., banking and technology consultancy.

Michael Lezenski, Bank of Boston's chief technology officer, said the bank's customer service push will help

it retain its top spot among regional banks.

"It's clearly our intention to be the leader of financial services in this area," Lezenski said. "We believe [the retail workstation project] will allow us to deliver faster, cheaper and better services to our customers while driving our own internal efficiency."

Bank of Boston will roll out more than 2,000 intelligent workstations to customer service representatives at its 300 branches and telebanking centers in New England. The bank's effort, spearheaded by IBM, was designed to bring the customer reps into a more sales- and service-oriented culture.

The project is part of Bank of Boston's Customer Focus program, which it launched last year to scope out and then satisfy customer needs, Lezenski said.

At the core of the retail workstation project is Bankpro GUI, a graphical client/server retail banking package from Argo Data Resources Corp. in Dallas. Bank of Boston, which used to run a predecessor Argo package on its IBM 4700 systems, chose OS/2 machines because the software was designed to easily extract IBM CICS data from its IBM ES/9000 Model 860 main-

frames at its Boston and East Providence, R.I., data centers, said George Swick, infrastructure release manager at the bank.

## Branching out

In the first phase of the 21-month project, Bank of Boston is evaluating the technical and business requirements of its branches and upgrading electrical wiring in those facilities. In July, the bank will begin upgrading its telecommunications network from analog connections to digital 56K-byte circuits, followed by a rollout of Novell, Inc. NetWare LANs and 2,000 IBM PS/2 worksta-



**Bank of Boston's Michael Lezenski:** *Customer service push will help retain bank's top spot*

## Corrections

Due to an editing error, several words were left out of the third sentence in a front page story ["EMC recasts RAID," CW, Jan. 30] on EMC Corp.'s mainframe RAID plans. The full sentence should have read: "The hybrid is based on a seldom-used implementation of the redundant storage technology."

In the Jan. 23 In Depth section, "Internet tough guys," the photo caption should have read: First Chicago's Internet team members (from left to right) are Mark Gallagher, Paul Stephenson and John Gilchrist.

The reference to Boole & Babbage, Inc. in the Jan. 23 issue under New Products should have referred to the company's Storage Division in Conyers, Ga., not the San Jose, Calif., headquarters.



# ORACLE7 OUTPERFORMS THE COMPETITION.

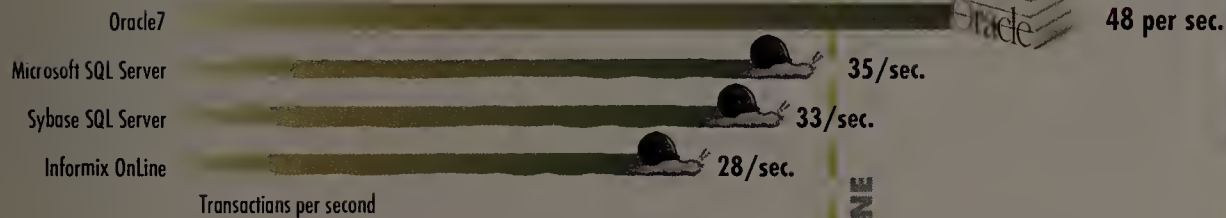
PC MAGAZINE DATABASE BENCHMARK

## RANDOM WRITE TRANSACTION MIX

(on 60 active workstations)

WORST

BEST

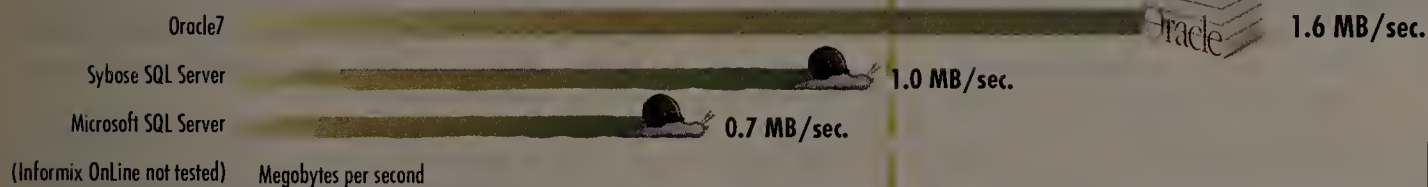


## BLOB RETRIEVAL

(on 60 active workstations)

WORST

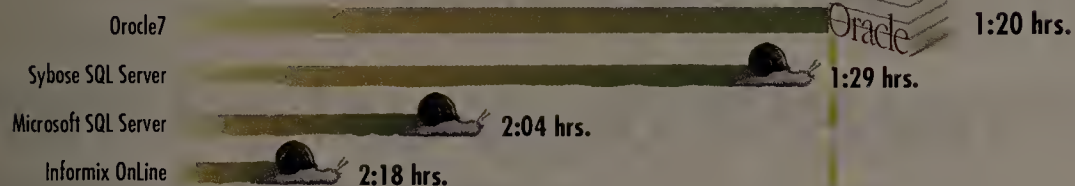
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## AD HOC QUERY

WORST

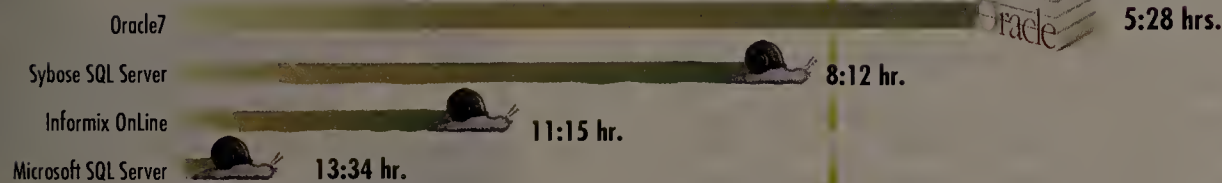
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## LOAD AND INDEX

WORST

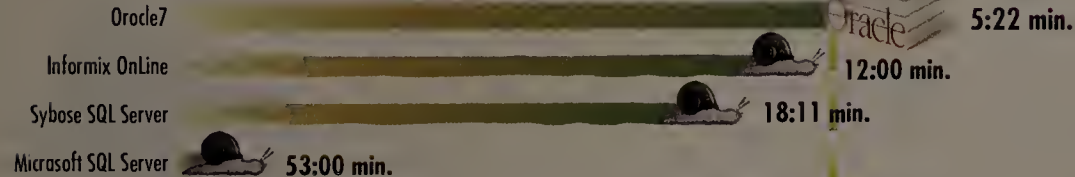
BEST



## EXPORT

WORST

BEST



"The best performer on this extremely demanding test\* was Oracle7... The engine ran error free and required very little tuning to achieve the measured performance."

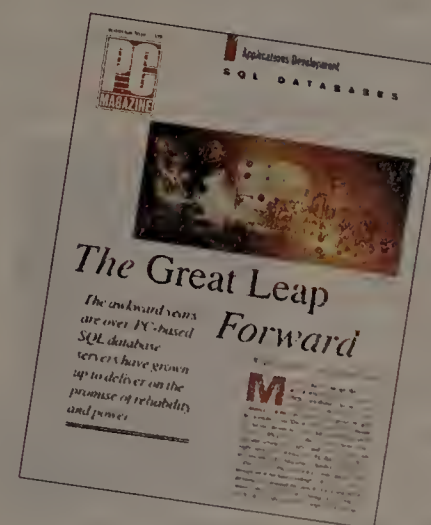
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# Borland seeks big hit with Delphi tool

By Elizabeth Heichler

■ **Borland International, Inc. next week will launch Delphi, a client/server development tool that executives at the financially troubled company say is the biggest weapon in its arsenal.**

Whether the Scotts Valley, Calif., company can rout already established competitors depends in large part on whether it can overcome developers' concerns about Borland's continued fiscal stability, developers and analysts said last week. Rival products targeted by Delphi include Powersoft Corp.'s PowerBuilder, Microsoft Corp.'s Visual Basic and Gupta Corp.'s SQL Windows.

Users who have beta-tested Delphi lauded the product from a technical standpoint, citing its full support for object-oriented features such as inheritance, polymorphism and encapsulation. And unlike other visual client/server development tools that have interpreted languages such as Visual Basic and PowerBuilder, Delphi includes a native-code compiler that delivers faster performance for applications.

"The fundamental issue on everyone's mind that comes first is Borland's financial condition," said Brent Williams, research director for application development at Gartner Group, Inc. in Stamford, Conn. "Vs. PowerBuilder, it's got to prove that it's way different and much better to overcome the corporate [stability] issue."

## One up on Visual Basic

Up against the widely anticipated but delayed release of Visual Basic 4.0, Delphi will gain from being "a product that's here and can be sold today vs. a product that's not," Williams said.

Zack Urlocker, Delphi's product manager, last week confirmed that the development tool will be unveiled Feb. 14 at the Software Development '95 conference at

San Francisco's Moscone Center and will be available in retail stores by the end of the month. It will come in two flavors: a desktop version for Windows 3.1 — priced to compete against Visual Basic and PowerBuilder Desktop, currently \$339 and \$695, respectively — and a client/server version that includes the Interbase database engine. That version will be priced aggressively against PowerBuilder Enterprise, which costs \$3,295, a Borland spokeswoman said. Pricing specifics were not available last week.

A 32-bit release of Delphi for Microsoft's Windows 95

Dueling development tools	
DELPHI	VISUAL BASIC 4.0
■ Compiled language; can generate executable files	■ Interpreted language; requires runtime library
■ Fully object-oriented environment	■ Improved object-oriented capabilities
■ Available in late February	■ Expected with delivery of Windows 95

and Windows NT operating systems will be delivered later this year after Windows 95 ships, Urlocker said.

The 32-bit Delphi will be available to beta testers before the Windows 95 release and will provide full support for Microsoft's OLE Custom Controls (OCX), he added. The current 16-bit version will allow developers to use Visual Basic custom controls (VBX), Object Linking and Embedding (OLE) 1.0, OLE 2.0 and OpenDoc objects in applications developed with Delphi. Developers will also be able to write reusable object components.

At Jet Propulsion Laboratories in Pasadena, Calif., technical staff member James Pham found that neither PowerBuilder nor Visual Basic was powerful enough for a complex in-house project. But the beta copy of Delphi that Pham has been working with since December

"looks like it's the answer" because it offers faster database access and more object-oriented features, he said. Pham noted that Borland's delay in adding support for OCXs to Delphi will not be a problem for him.

However, Christopher Ross, president of developer Artemis Alliance, Inc. in St. Paul, Minn., said the wait could be an issue. "We work to long schedules, and we're thinking ahead to Windows 95," he explained. Artemis has used Visual Basic for prototyping, demonstrations and production applications but will use Delphi as the development environment for its biggest projects, he said. Ross said he expects Delphi to be faster because it is a compiled language, and it also has the true object-oriented design and programming capabilities that Visual Basic lacks.

Corporate developers using Visual Basic said they are interested in Delphi's object-oriented capabilities and native compiler technology.

"We will buy at least an evaluation copy of Delphi as soon as it's released," said Dennis Hayes, a systems programmer at Glico-Harmony Foods Corp. in Santa Cruz, Calif. The information systems department has used Visual Basic for several years. "The real value of objects is reuse, and truly reusable objects must support inheritance. Neither VBXs nor OCXs support inheritance. I expect Borland to get this right."

"Delphi is certainly something we're taking a look at," said David Headley, a senior software engineer at Polaroid Corp. in Cambridge, Mass. But he said rewriting his Visual Basic application in Delphi would probably be too costly, and he is eager for Visual Basic 4.0.

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**New methodologies** are needed for client/server applications. See page 81.

# Chase Manhattan trades up to high-speed network

By Jean S. Bozman

NEW YORK

While most of America was cheering football teams on Super Bowl Sunday, electricians and technicians here were racing the clock to wire The Chase Manhattan Bank NA's new high-tech trading floor with high-speed networking and on-demand video.

By 7:30 a.m. on Jan. 30, 100M bit/sec. fiber-optic networks were in place, and the available bandwidth on Chase's trading floor had shot up twentyfold, said Bill Schimoler, vice president of trading technology at Chase. That extra elbow-room on the data highway allows on-screen videoconferencing for the first time.

Video will put real-time data feeds into context. It will allow brokers in New York to talk to one another about market conditions and about Buy/Sell stock recommendations. The video system uses analog signal technology from Uni-Data and Communications, Inc. in Flushing, N.Y., over twisted-pair wires. Chase traders also use videocon-

ferencing rooms to speak with their counterparts worldwide.

For example, a news tip that Chase transmits globally from its traders in New York to those in London can create profits — even before television networks broadcast the tip widely. "If something breaks and we can get that word out on a global basis in a few seconds or a

few minutes, that's a competitive advantage," said Rupri S. Puri, senior vice president of Chase's global trading operations and technology.

## The human touch

For all its high-tech environment, Chase still relies on human contacts to make quick decisions. "Ideally, we would have wanted to have all of our traders on one floor in sight of each other," Schimoler explained. That way, a simple arm wave

could draw attention. But to accommodate 450 traders in New York, two trading floors are being installed here, connected by staircases. The second one is set to go on-line by month's end. Future plans are to extend

the video feature to London and Tokyo with high-speed T1 links or multiplexed 56K bit/sec. leased lines.

Last week, New York traders were taking their video "windows" for a test-drive, dialing up other New York colleagues by double-clicking on a menu of user names. "I've got the video option, and I'm watching CNBC and CNN," said Benoit Jadoul, a vice president for foreign exchange marketing.

In all, there are nearly 900 Chase traders worldwide, each equipped with two Unix workstations: one for market data and another for applications. Chase's extra network bandwidth supports more client/server applications, including Chase's Electronic Book of traders' investment positions, which is passed around the world as each global office heads home at night.

## Long, winding road

Chase decided two years ago to upgrade its trading floors in New York, London and Tokyo to speed internal communications. The cost of the New York upgrade alone was about \$100 million. But the investment in client/server applications,



Chase Manhattan's trading floor now has high-speed networking and on-demand video

analysis programs and high-speed networks is supposed to pay off in higher bank revenue.

All three of Chase's global trading floors are built with Sun Microsystems, Inc. workstations, Unix applications and lots of high-bandwidth communications. Tokyo got its new trading systems last August, and London will get similar gear by year's end. The bank's three-layer network uses 100M bit/sec. fiber-optic "rings" to connect local Ethernet LANs, all in a global network managed by Sun's SunNet Manager.





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# The shape of things to come

**T**he recent hacker activity on the Internet reminds us that the Internet is a prototype for our future communications, not the future itself. The Computer Emergency Response Team notice on IP spoofing that was issued Jan. 23 reemphasizes that skilled hackers can overcome many safeguards.

The surge of Internet interest overlooks that network's chaotic nature, an attribute pioneering users hold in high esteem but IS directors view warily. The Internet version of the information highway is public transit for con artists and computer wizards wielding burglarious tools (see Editorial, page 40).

So I'm not so sure the Internet will fulfill some of the plans envisioned for it. "Doing business on the 'net is likely to become standard practice as soon as a reasonably secure infrastructure for network payments — and for authenticating the payer and payee — is in place," says A. Lyman Chapin, a chief scientist at Bolt Beranek and Newman's Systems and Technology Division and former chairman of the Internet Architecture Board.

Security for large-sum transactions, however, may be beyond the capability of the present Internet. Real security for hundreds of thousands of users requires real investment. One of the few foolproof remedies is for the user to communicate a randomly generated number along with his password to a central server that hosts the same random-number generating process. A match is made, and the user is given access. But safeguards, short of such an intricate system, can be foiled by determined hackers.

The Internet will host countless information boutiques and small businesses, but it is unlikely that Citibank will ever conduct commercial lending over it. Rather, we are likely to see the birth of private networks modeled on the Internet, with controls and security guarantees that allow business to be conducted.

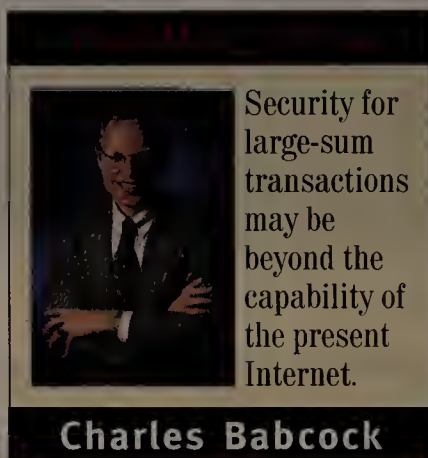
The shape of these future, private internets is still unknown, but the lines with which to build them are already being installed. Telephone companies, cable TV companies, railroads and bridge and tunnel authorities — anyone who can command a backhoe and public right-of-way — are laying fiber-optic cable to be leased someday to a network supplier.

I was surprised to learn about a large public utility that automatically strings fiber-optic cable down the center ground wire of its transmission system. Unlike copper, the fiber-optic cable was unaffected by the electromagnetic fields of the nearby transmission lines. The investment was minimal because the utility already owned the right-of-way. And after carrying the utility's telephone and data traffic, the cable had plenty of capacity left over to lease to other companies.

This surplus capacity will be stitched together into regional and quasi-national private networks. Their configuration might vary from week to week or even day to day. Granted, extending the network that last mile into the heart of a community may be a long way off.

Not everyone will have immediate access to these improvised virtual networks, just as not everyone is located near an interstate highway ramp. But the access will be extended farther and farther out, and there will be few unidentified hitchhikers hanging around the fringes.

When these private networks emerge, in many ways they will be antithetical to the spirit of the Internet, with its free-for-all ways. They will charge for access, guarantee delivery of complex data and be closely monitored and managed. Interlopers and attempted security violators will have the door slammed in their faces.



Security for large-sum transactions may be beyond the capability of the present Internet.

Charles Babcock

Babcock is *Computerworld's* technical editor. His MCI Mail address is 575-2737.

## News Shorts

### Microsoft faces another anonymous charge

Court review of the **Microsoft Corp.** antitrust settlement took a new turn last week as Silicon Valley attorney Gary L. Reback gave the court a secret document that allegedly shows more anticompetitive conduct. Reback's filing, on behalf of anonymous clients, said the document shows that Microsoft warned an unidentified company not to release an application for a rival operating system. Then, to reinforce the warning, Microsoft allegedly altered one of its products so that it would be incompatible with the competitor's products. Microsoft said it could not comment on the unseen document.

### Intel lowers chip prices, PC impact expected

The PC market should soon see another round of price cuts. **Intel Corp.**'s processor pricing for the current quarter dramatically lowers the bar on some of its hottest-selling chips. Some of the new prices, which went into effect Feb. 1, are up to 48% lower. For instance, the 75-MHz, I486DX4 processor now sells for \$186 in quantities of 1,000 chips, compared with \$356 last quarter.

### Former Oracle exec drops lawsuit

A former senior marketing executive at **Oracle Corp.** recently dropped a \$30 million lawsuit against the company and Chief Executive Officer Larry Ellison that alleged wrongful firing, breach of contract and other misdeeds. Terry Garnett dropped the suit, which was filed in San Mateo County Superior Court last October, four days before he was scheduled to be deposed. No settlement or payment was involved, said Ray Ocampo Jr., Oracle's general counsel. Garnett could not be reached for comment.

### Chase IS exec moves to Prudential

John Scicutella, most recently executive vice president of technology and operations at **The Chase Manhattan Bank NA** in New York, has left the bank to take on a similar role at **The Prudential Insurance Co. of America** in Newark, N.J. Scicutella, 45, will be replaced by Douglas Williams, who had been a senior vice president of the bank's technical services group.



### MCI launches virtual network

**MCI Communications Corp.** said last week it would launch a nationwide virtual network combining Synchronous Optical Network and Asynchronous Transfer Mode signaling. The voice, data and video virtual network will operate at speeds of 155M bit/sec. across MCI's 2.5G bit/sec. backbone network. MCI said it will boost its backbone to 10G bit/sec. early next year, with an eye toward supporting 40G bit/sec. speeds in the near future.

### Cisco CEO passes the reins

John Morgridge officially stepped down as president and CEO of **Cisco Systems, Inc.** last week. Former Executive Vice President John Chambers took over as CEO of the \$1 billion San Jose, Calif., internetworking company. However, Morgridge will remain connected to the company as chairman of the board.

### HP to ship HP/UX Version 10

**Hewlett-Packard Co.** will ship its HP/UX Release 10 Unix operating system later this month, the company said. The new version boosts performance of workstations and servers by 10% to 20% and improves the scal-

ability of high-end Unix servers. Users who request it can install HP/UX 10 right away, but a general release will follow in 90 days allowing third-party vendors to port applications, HP said.

### Software pirate shut down

**Novell, Inc.** and **Microsoft** last week reached an agreement that effectively shut down the so-called "Deadbeat Bulletin Board," which was illegally distributing pirated copies of more than 60 Novell and Microsoft software and beta-test packages. As part of the agreement, the New Jersey-based teenager who ran the bulletin board agreed to pay \$25,000 in restitution to the two software giants.

### Apple's OpenDoc delayed

Late last week, **Apple Computer, Inc.** said it is pushing back delivery of its OpenDoc document management software by six months. The final version will ship to developers in the fall, rather than in March or April, as was originally planned.



**SHORT TAKES** Sun Microsystems, Inc. last week named SunSoft President Ed Zander president of **Sun Microsystems Computer Corp.**, its \$4 billion hardware subsidiary... Packaged software was the fastest-growing part of the U.S. service economy, with sales up 253% from 1987 to 1992, the government reported... Robert K. Malik has been named chief information officer at **Unum Corp.** in Portland, Maine. He previously served as senior vice president and CIO at Lincoln National Corp. in Fort Wayne, Ind... Dwayne Walker, the **Microsoft** executive responsible for application development for Windows NT and Microsoft's back-office programs, is leaving at the end of the month to join an unidentified third-party application vendor... **IBM Credit Corp.** in Stamford, Conn., agreed to acquire **Chrysler Systems, Inc.**, a subsidiary of Chrysler Financial Corp. that offers PC asset management and leasing services... The 100VG-AnyLAN standard got a much needed lift last week when more than a dozen vendors announced plans to either ship or develop products based on the 100M bit/sec. internetworking technology. Among the vendors were **HP, Chipcom Corp., Cisco** and **IBM**.



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# Survey blasts accounting systems, rankles IS

By Rosemary Cafasso

Information systems got its butt kicked last week in an industry survey that showed a majority of financial executives are unhappy with their accounting systems.

The big gripes include poor user interfaces, difficult data access, high maintenance costs and lousy integration between accounting modules and other tools.

Some IS executives fought back, saying they are willing to accept some—but not all—of the criticism.

"You can't say, 'I don't like this system, and it's all your fault,'" said Keith Minaker, corporate comptroller at United

Grain Growers Ltd. in Winnipeg, Manitoba. "They are the owners and users of information. If they don't like what they are getting, then it is up to them to do something about it."

The survey, conducted and financed by Deloitte & Touche in New York and IMRS, Inc., a Stamford, Conn.-based financial software company, was based on 221 re-

sponses from financial executives. A majority worked at companies with more than \$1 billion in sales. Altogether, the group uses a total of 2,034 financial programs, most of which are still mainframe-based.

More than 60% of the respondents said their company's accounting software needs improvement, while less than 10% considered their systems above average.

Gary Compasso, director of financial systems at Ames Department Stores, Inc. in Rocky Hill, Conn., said the criticisms would be valid if they concerned outdated legacy systems. In those cases, "the data was really locked up. I think that was the gripe."

Ames uses a mix of mainframe-based financial applications, front-end report writers and in-house-designed data access tools that run on PCs. "We bring information down onto the LAN to allow users to access it," Compasso said.

**Financial executives report that 64% of new accounting systems planned for the next two years will be client/server-based.**

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### Working on it

Other IS executives acknowledge that many older mainframe accounting systems do not measure up on important tasks such as data access and easy-to-use front ends. But they said they are already working to address user gripes by adopting new technologies, particularly client/server financial systems that provide graphical data analysis tools.

Minaker said users had a legitimate beef with the company's mainframe-based system, which they likened to a black hole.

United Grain Growers is implementing a client/server financial system from Dun & Bradstreet Software in Atlanta, and Minaker said users can at least see the potential of the new system. The software will provide graphical data analysis tools that give users functions they did not have with the mainframe system, such as a drill-down capability and the ability to work with financial data.

Bob Culmer, director of information technology at Phillips Cables Ltd. in Toronto, suggested that IS might instead be faulted for not communicating clearly with management.

"I think IS does a poor job of managing expectations at a senior level," Culmer said. "We can talk about capabilities but not say how long it will take. That's where we all fall down."

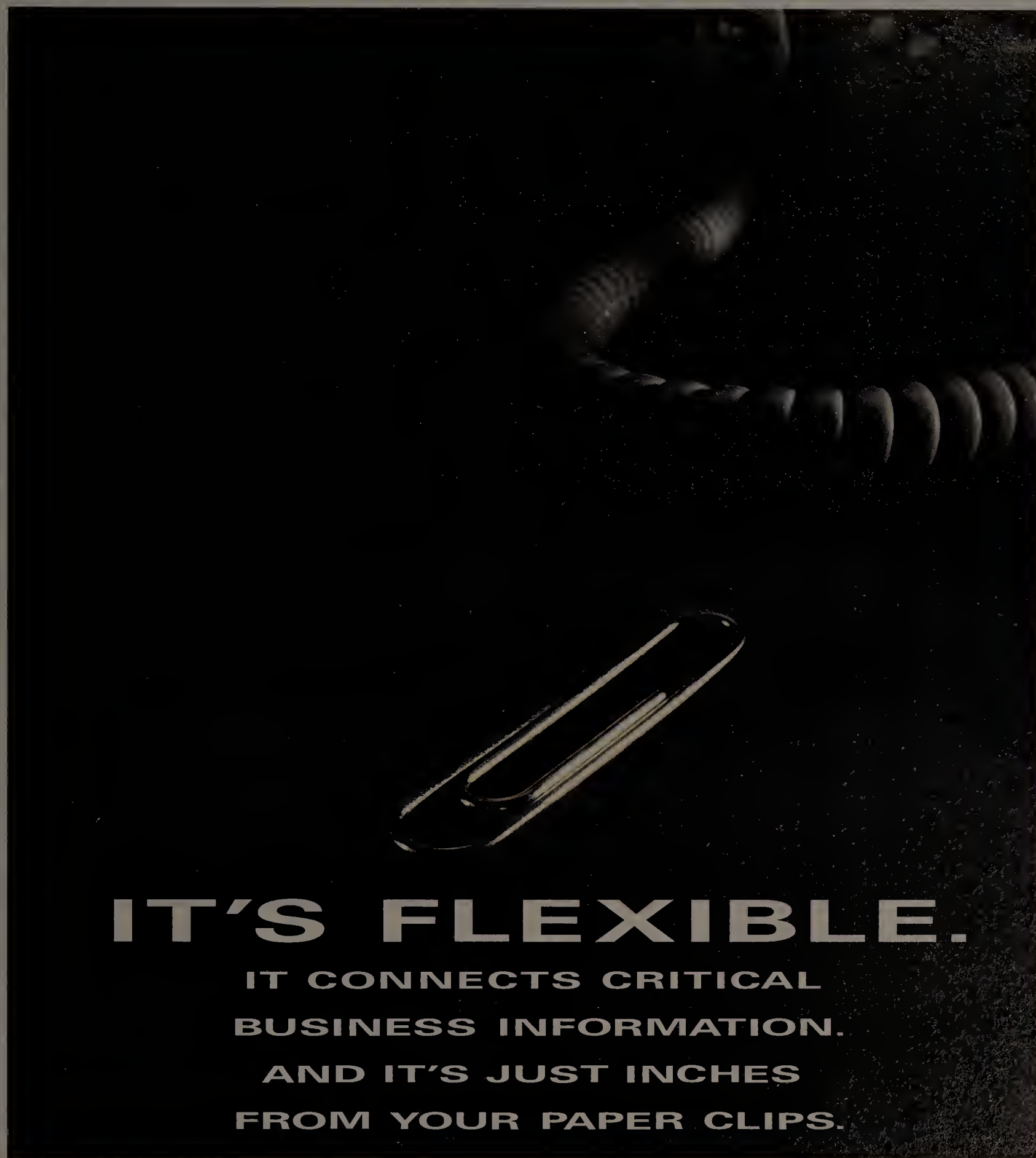
Yet Frank Garvey, a senior manager at Deloitte & Touche who worked on the survey, said the results are not intended to dump on IS as much as show that there is still plenty of frustration on the user side.

"They know you can get [data], and they are wondering why they can't get it," Garvey said. "It's a frustration level of these financial people."



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# NT software for Internet en route

By Ellis Booker

Companies eager to build their own off-ramps on the Internet have had little option but to employ Unix tools and servers.

That is about to change. Several vendors are launching commercial World-Wide Web software that runs on Microsoft Corp.'s Windows NT Server. Analysts said this will open the Internet to organizations that want an Internet presence but either lack Unix skills or have been reluctant to use existing NT-based Web software, which until now has been available only as freeware.

The Web is a multimedia-capable Internet server that users navigate via an intuitive point-and-click interface. It is by far the fastest growing part of the Internet.

Among those offering NT Web servers are the following:

- **Process Software Corp.** in Framingham, Mass., which last week was the first off the blocks with its Purveyor Version 1.0 Web server for NT3.5 and above. The initial release runs on Intel Corp. hardware and Digital Equipment Corp. Alpha RISC processors. It is priced at \$1,995 and will ship in March.
- **Netscape Communications Corp.** in

Mountain View, Calif., which has said its own NT Web server will be out in the first half of this year. Netscape, which offers the popular Internet browser of the same name, has been selling two Unix servers since last December.

• **O'Reilly & Associates, Inc.** in Sebastopol, Calif., which last week announced plans for an NT Web server by May. WebSite will include a graphical document manager called WebView, a copy of Enhanced Mosaic 2.0 and documentation. Pricing was not available.

## Long time coming

"The absence [of NT Web servers] has held people back," said Cheryl Currid, president of Currid & Co., a consultancy in Houston. She described the pricing for the service bureaus that have sprung up everywhere with offers to build and maintain Webs as "all over the map." Users would probably opt to control these systems in-house if not for their lack of comfort with Unix.

The option of going with an NT Internet server "makes a big difference for us because we're trying to migrate our county onto one standard networking and operat-

ingsystem," said Curtis Olliff, systems/network coordinator for Ambulatory Care Services for Alameda County, Calif., which established an Internet presence less than a year ago.

For Purveyor, Process licensed code from the European Microsoft Windows NT Academic Centre (EMWAC), which in conjunction with Microsoft has been distributing the \$150 NT Web server for the past several months. The EMWAC code is freeware.

Purveyor beta user Michael Donahue, chief technology officer at InterWorld Corp. in New York, said Process' commercialized product improves on EMWAC, notably with better security.

"Security is integrated into the file manager... so you can tag files that are available to groups or individual users," said Donahue, who is developing a transaction processing system for InterWorld that will work with Microsoft's NT Server and SQL Server. InterWorld's Internet news and shopping service will go on-line in less than two months.

The Purveyor NT Web server offers security of pages, directories or the whole server based on user name, password or IP address.

## Oracle weaves its own Web

Oracle Corp. plans to unveil a free kit this week for integrating Web servers with Oracle 7 databases, company officials said. The kit is part of Oracle's push to make its products Internet-ready.

Oracle Book and Oracle Objects—tools for creating graphical and multimedia applications—are being upgraded to better support on-line capabilities such as the Internet file format HyperText Markup Language. The upgrades are due in April, a spokeswoman said.

The company also plans to offer a hypertext conversion service in April. Users will be able to send documents to Oracle's own Web server in Redwood Shores, Calif., to be fully hypertext-enabled.

—Kim Nash

# WordPerfect to roll out Internet tool set

By Ellis Booker

■ **WordPerfect will debut tomorrow a suite of tools for authoring HyperText Markup Language (HTML) documents, the DNA of the Internet's World-Wide Web.**

Slated to be unveiled at the Demo '95 conference in Palm Springs, Calif., the tools—the first of which will be available in March—will let users collectively connect, access, author and browse the Internet.

While there are plenty of free HTML editors out there, "we saw the frustration of people who wanted to use mainstream products," said Dave Harkness, product marketing director for electronic publishing at WordPerfect, the Novell, Inc. Applications Group.

Harkness might also have cited user frustration over the delay of Microsoft Corp.'s Internet Assistant for Word. Announced last November at Comdex/Fall '94, the Assistant is now due out within a month or two, according to a knowledgeable beta user.

WordPerfect will announce three different products: one free, one on CD-ROM that features an Internet access sign-up, and one high-end system that can create either HTML or Standard General-

ized Markup Language (SGML) documents.

The first of these, the free Internet Publisher, will be ready at the end of February or early March, Novell officials said. It will include an HTML browser integrated with WordPerfect and Envoy viewers, HTML Templates, Automated conversion from WordPerfect to HTML, a WordPerfect viewer and an Envoy "mini" viewer.

The Internet Publisher Pro, priced at \$49 and slated for April delivery, will be shipped on CD-ROM and add a TCP/IP stack and an automated Internet sign-up feature.

In May, WordPerfect will deliver the \$595 SGML Edition. This standalone product will include SGML and HTML templates, a layout designer and more sophisticated document management features. The SGML edition will ship with a copy of WordPerfect's word processor.

Analysts agree that the arrival of WordPerfect and Microsoft in the HTML authoring space is a seminal event.

"This is definitely one of the main things that will help create the critical mass of content on the Web," said Frank Gilbane, president of Publishing Technology Management, Inc. in Cambridge, Mass.

# Stratus to shift to PA-RISC line

By Mark Halper

Hoping to change horses in midstream without taking a bath, Stratus Computer, Inc. plans to begin moving users from its I860 line of fault-tolerant systems to a PA-RISC line it will unveil today.

The new Continuum Series represents a fourfold improvement in price/performance over Stratus' I860-based XA/R series, according to Jim Holley, director of product marketing. Absolute performance improvements are about threefold, according to the company's internal benchmarks.

The switch to the PA-RISC 7100 marks the second time in three years that Stratus is changing its hardware horse. In 1992, the company began migrating users from systems built on Motorola, Inc.'s 680x0 processors to Intel Corp. I860-based systems.

## Platforms keep changing

"They seem to be changing platforms like they change socks," said Jim Johnson, chairman of The Standish Group International, Inc., a Dennis, Mass.-based market research firm.

Johnson said the I860 line has "not been a world beater" and that the price/performance improvements gained in the switch to PA-RISC might stimulate sales into a double-digit growth curve. Last year, Stratus owned about 15% of the \$2.8 billion fault-tolerant market—a distant second to archrival Tandem Computers, Inc.'s 57%.

Johnson said "atrocious" pricing on the I860-based XA/R line encouraged vendors of less costly high-availability systems, which do not provide the same degree of fail-safe performance as do fault-tolerant systems, to encroach on Stratus' turf. Despite the performance boost, the price range remains roughly the same on the Continuum as on the XA/R systems (see chart).

A sampling of Stratus' Continuum models:

MODEL	PROCESSOR SPEED	NUMBER OF PROCESSORS	SLOTS	MEMORY	PRICE
610S	72 MHz	1	6	128M bytes	\$98,000
620	72 MHz	2	6	128M bytes	\$285,000
1210	72 MHz	1	12	128M bytes	\$335,000
1245	96 MHz	4	12	256M bytes	\$890,000

"One of Stratus' strategies now is to come in with price parity with the high-availability vendors," said Donna Scott, an analyst at Port Chester, N.Y.-based D. H. Brown Associates. Vendors including IBM, Hewlett-Packard Co. and AT&T Global Information Solutions have been gaining ground at Stratus' expense, she added.

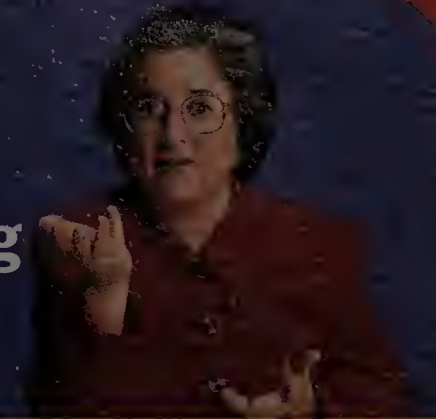
Both analysts said, however, that Tandem's renewed aggressiveness will continue to pose stiff competition for Stratus. Tandem last month unveiled parallel servers that outperform earlier Tandem models by 50% to 300% [CW, Jan. 23].

As for the migration, Holley said the company's FTX Unix and VOS proprietary operating systems on the new platform are 100% source code-compatible with I860-based FTX and VOS. Users and developers will spend one to two weeks recompiling each application, he said.



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**Judith Hurwitz**  
President, Hurwitz Consulting



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Ship Date: 06/05/1994 Package ID: 20357

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Company: Creative Designs  
Contact: Mike Xavier  
Address: 45 Birch Street  
City: San Diego CA 94327  
Phone: 918-327-4476

**Ship To:**  
Company: Jenny Bean Co.  
Contact: Jenny Morgan  
Address: 2223 Sugar Lane  
City: Mountain View CA 94033

**Tracking Information**

Ship Date: 06/05/1994 Package ID: 20357

Ship To: Jenny Morgan Weight: LRG  
Ship From: Mike Xavier Ship Type: GEN

Date	Time	Description	Employee	Status
06/05/1994	13:00	Origination Point	Bob Jones	ON TIME
06/05/1994	14:00	Delivery Van	Jill Watkins	ON TIME
06/05/1994	16:00	San Francisco	Alan Jones	ON TIME
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# IBM to ship tape drives minus stacking ability

By Craig Stedman

Commercial mainframe shops looking to make maximum use of new high-capacity tape drives promised by IBM may just have to wait until next year.

IBM is still expected to start shipping MVS versions of the 10G-byte New Technology Prototype (NTP) tape devices in the fourth quarter. But industry sources familiar with IBM's plans said a key feature that will allow the devices to be split into multiple logical pieces is not likely to be ready until sometime next year. IBM is counting on NTP to help stem a recent tide of tape market-share losses (see chart).

## Limited uses

But without the so-called volume stacking capability, NTP will be limited to niche uses with very large data sets, such as seismic and geophysical processing, said Paul Wolfstaetter, a storage analyst at Gartner Group, Inc. in Stamford, Conn.

"There will be a market in the interim, but they can't fully exploit NTP until they deliver volume stacking," Wolfstaetter said. He added that he does not expect the multiple volume support to be added to NTP until the second half of next year.

An IBM spokeswoman declined to comment last week other than to say the company is "progressing with plans" for NTP.

Volume stacking would enable users to store numerous small data sets,

down to increments of perhaps 50M bytes each, on a single NTP cartridge. IBM officials have said the tape control unit would then be able to simultaneously call up multiple logical volumes and stage them in a buffer [CW, July 4, 1994].

Paul Quade, director of capital plan-

ficiently, it would be important to us to have that feature," Quade said.

"We don't have any humongous data sets that would need" NTP's full 10G-byte capacity, said Phil Davis, director of technical services at Mazda System Services, the information systems unit of Mazda of North America, Inc. in Flat Rock, Mich. Volume stacking might make NTP more interesting, although Davis said he does not plan to consider upgrading his current stock of 3490E drives and cartridges until late 1996 at the earliest.

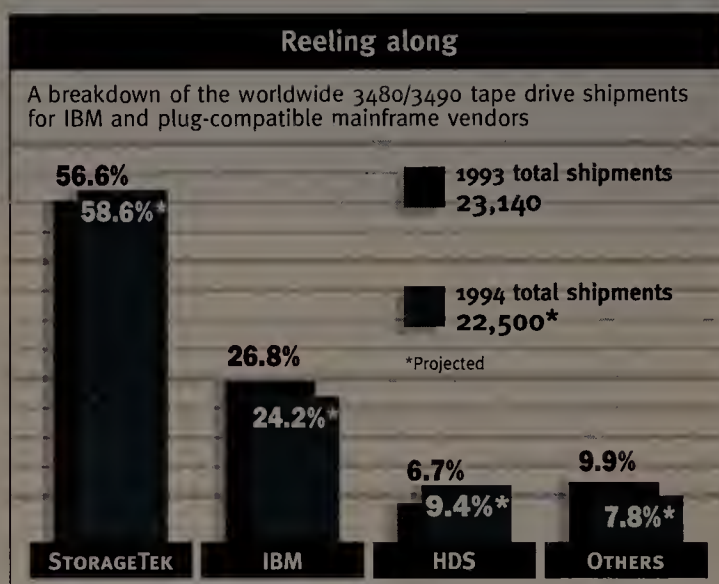
## Competitive price

Last summer, when IBM talked about NTP publicly for the first time, company officials said the product would sell for roughly the same price as the 3490E, which would drive down the cost per megabyte by almost 90%. The new drives also are supposed to have a

data transfer rate of 9M bytes per second, triple the performance of the 3490E.

"IBM desperately needs NTP. Right now, they are not the chosen tape vendor," Wolfstaetter said. The technology has great promise, he added, but the initial lack of volume stacking would be a blow—especially with market leader Storage Technology Corp. scheduled to formally introduce both high-performance and high-capacity additions to its tape lineup this week.

IBM to unveil new client/server CICS versions. See page 72.



Source: International Data Corp., Framingham, Mass.

ning and resource management at Galileo International in Englewood, Colo., said multiple data sets can already be stored on 3480 and 3490 cartridges, but accessing them requires manual steps that would be automated under the NTP volume stacking approach.

NTP could be compelling just from the standpoint of its sheer capacity, which compares with a maximum of 800M bytes per cartridge on existing 3490E tape technology, Quade said. However, he added that volume stacking support is needed to make NTP more useful.

"In order to utilize the technology ef-

## A tale of two tapes

StorageTek and Hitachi Data Systems Corp. plan to stage dueling mainframe tape announcements this week. StorageTek is officially introducing its long-promised TimberLine and RedWood devices, while sources said HDS will bring out a pair of automated tape libraries for System/390 users.

TimberLine is a 36-track drive that uses direct channel attachment and built-in controllers to transfer data much faster than conventional 3490 devices [CW, Oct. 24, 1994]. Meanwhile, RedWood has a capacity of up to 25G bytes per cartridge and is being positioned by StorageTek as a niche product for scientific and seismic applications [CW, July 4, 1994].

HDS declined to comment about its libraries, although it did acknowledge that an announcement is scheduled for this week. Analysts said the HDS products are plug-compatible with IBM's 3495 and 3494 libraries and will be able to use IBM's storage management software.

Although specific pricing information was not available at press time, the similarities between IBM and HDS should enable prospective customers to get them into a bidding war, said Stan Corker, an analyst at International Data Corp. in Framingham, Mass. "The end user has now got Hitachi to use as ammunition against IBM," he noted.

StorageTek and HDS are also both expected to detail plans for new RAID Level 5 disk arrays [CW, Jan. 30].

—Craig Stedman

# Denver utility outsources data center to IBM's ISSC

By Mark Halper

In a deal intended to help both companies move into the era of deregulated utilities, IBM's Integrated Systems Solutions Corp. (ISSC) subsidiary last week entered a 10-year outsourcing arrangement with Denver-based Public Service Company of Colorado.

At the core of the deal is a classic information technology operations contract that calls for ISSC to take over Public Service's Denver data center, its workstations and help desk operation as well as its intrastate network. ISSC will also pick up application development.

Del Hoek, the utility's chairman, said the \$500 million technology project will save \$190 million over 10 years.

In a separate but related contract, Public Service will provide IBM with energy consulting to help IBM trim its gas

and electric costs at 16 plants in the U.S.

The utility will provide those services through a new subsidiary it calls E Prime, which will market its services to other companies. Completing the partnership circle, E Prime and IBM formed an alliance under which IBM will develop applications to help E Prime customers manage energy procurement and consumption. IBM is not purchasing equity in E Prime.

## Role-playing

Analysts noted that the exchange of services between IBM and E Prime illustrates an emerging trend in which outsourcers play the role of both vendor and customer with their clients. In another recent example, Electronic Data Systems Corp. signed a 10-year outsourcing deal with Lake Forest, Ill.-based Moore Corp. Ltd. in which Moore is supplying EDS with business forms and commer-

cial printing.

And like IBM's alliance with E Prime, AT&T Global Information Solutions and Delta Air Lines are jointly marketing services to the airline industry as part of AT&T GIS's 10-year, \$2.8 billion outsourcing deal with the airline. In that case, the companies established a 50/50 jointly owned venture.

"These relationships are extending themselves with real interesting nuances," said Allie Young, an analyst at San Jose, Calif.-based Dataquest, Inc. "These types of contracts show a clear direction for the future of outsourcing. The key is the strategic involvement of the two companies."

The Public Service contract is one of many outsourcing contracts expected as utilities try to blast out of their compla-

## Energized

Recent energy industry outsourcing deals include the following:

ENERGY COMPANY	OUTSOURCER	LENGTH OF CONTRACT/AMOUNT
Philadelphia Electric	ISSC	10 years/ \$450M
San Diego Gas & Electric	Computer Sciences Corp.	5 years/ \$60M
Halliburton Energy Services	Andersen Consulting, Power Computing, I-Net	10 years/ \$500M
Public Service of Colorado	ISSC	10 years/ \$500M

cent former environments and into a competitive market [CW, Nov. 28, 1994]. Late last year, San Diego Gas & Electric Co. and PECO Energy Co. also entered outsourcing pacts (see chart).

For Public Service, the \$190 million cost savings will be vital in the new competitive environment, where utilities are vying to offer services at the lowest price.



## Intel distills

CONTINUED FROM COVER 1

its desktop and server efforts, company officials confirmed last week. In particular, Intel will focus on bringing the Pentium chip into the mobile market in the second half of this year, according to sources close to the company.

When this happens, the sort of price cutting that was seen last week — IBM PC Co., Compaq Computer Corp., Toshiba America Information Systems, Inc. and Dell Computer Corp. all cut notebook prices — could become the norm, especially for 486-based notebooks.

IBM cut prices on select ThinkPads by 10% to 24%; Compaq dropped prices by as much as 14% on its high-end LTE Elite line; Toshiba dropped prices by up to 22%

on a number of color notebooks; and Dell cut prices by up to 16% on its high-end Latitude XP.

Previous expansions of notebook capabilities have broadened the mobile market significantly.

Last year, notebooks made up 20% of the overall PC market,

while this year they will account for 25%, according to International Data Corp. in Framingham, Mass.

Corporations have begun adopting mobile technology in place of desktop technology and automating workers who need high-powered machines that can be easily carried. A Pentium push into the mobile market may increase these corporate re-engineering efforts, particularly as environmental laws kick in to regulate commuter traffic.

### Just you wait

While Intel has one mobile-oriented Pentium on the market — a 50/75-MHz chip — it is planning a rapid expansion, according to sources. Its expected efforts include the following:

- A dual-voltage version of the 60/90-MHz Pentium processor currently used in desktops and servers. This chip, due in the second quarter, will bring notebooks up to the level of all but the highest-end desktops.
- Mobile versions of faster Pentium chips, expected in the second half of this year. Their desktop/server counterparts will be introduced at the same time.
- A strategy to create a two-tiered Pentium notebook market, with an expensive high-end class and a lower-cost value category.
- Chip sets for the notebook market, expected sometime around midyear.

The immediate impact of notebooks based on these new chips will be a significant increase in power for users, according to the sources.

And that pleased at least one large corporate user.

"Part of my wish list for technology is better quality sound and video," said Michael Radigan, a program manager at Xerox Corp. in Rochester, N.Y. Faster chips at lower price points will let Xerox deploy more advanced technologies for its sales force without having to pay more money.

Intel's efforts may also result in better battery life, sources said. The new mo-

bile 60/90-MHz chip will run at dual voltages, 2.9V inside and 3.3V externally. Because of the lower internal voltage, the system will have better battery life. The external 3.3V component of the chip is needed because PCs are specified to run at either 3.3V or 5V.

The new chips will require notebook makers to redesign system motherboards so they can supply dual voltages to the chip, according to sources. They will also need to make a slight en-

hancement to the power supply.

Stephen Nachtsheim, Intel's vice president of mobile and home products, declined to confirm or deny specific product announcements. But he did confirm that Intel is working to bring its mobile computing efforts up to speed with its desktop and server moves.

Nachtsheim said mobile computing "has gone from something that was off the mainstream here to being really smack dab in the middle of it."



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# Digital flexes RAID muscle with high-end storage system

By Neal Weinberg

Pushing beyond the borders of its installed base, Digital Equipment Corp. last week rolled out a high-end line of RAID storage systems aimed at IBM, Sun Microsystems, Inc. and Hewlett-Packard Co. platforms.

The StorageWorks RAID Array 410 is an enhanced version of the system available to Digital customers. It has a platform kit customized for each of the targeted vendors.

Thomas Lahive, an analyst at International Data Corp. in Framingham, Mass., said Digital's past strategy has been hazy, but "this is a first step in going after non-DEC platforms."

"DEC has put a lot of money into the design of their subsystem, allowing it to be extremely modular

and flexible via hardware componentry," Lahive said. "And they've put a lot of time developing a complete marketing campaign for [value-added resellers]."

Lahive said Maynard, Mass.-based Digital derives more than 95% of its StorageWorks revenue from the installed base.

He said the RAID Array 410 is well positioned in terms of capacity, fault tolerance and price per megabyte.

Bob Katzive, vice president of Disk/Trend, Inc. in Mountain View, Calif., said there is a market op-

portunity for Digital's latest offering because the company can offer broad support for the product.

"It seems to be a good solution for Unix users with high-performance and high-availability needs," said Yong Kim, an account representative at ETC Direct, a Digital reseller in Glastonbury, Conn.

"My technical support people like the product," said Don L. Owens, vice president of MIS at Amerigas Propane, Inc. in Valley Forge, Pa. He said the company was evaluating the RAID Array 410 and planned to make a decision in the next three to four months.

RAID technology, he added, offers "greater value with lower cost."

Owens said the StorageWorks line represents an important part in Digital's turnaround strategy.

Anne Blanchard, Digital's StorageWorks business development manager for IBM, said the RAID Array 410 is "the most sophisticated subsystem we've offered to date to these markets." The RAID Array 410 represents the third generation in the product line.

The product is priced at \$26,499 for a 12.6G-byte configuration. The optimized controller performs up to 2,600 I/O operations per second and has a 32M-byte read- and write-back cache.

Digital customers parry with big iron. See page 72.

**RAID technology offers "greater value with lower cost."**

—Don L. Owens, Amerigas Propane

# Hybrid service eases wireless data access

By Michael Fitzgerald

By giving users a way to send data transparently over conventional circuit-switched cellular networks or cellular digital packet data (CDPD) networks, cellular carriers last week removed another of the many impediments slowing wireless data transfer.

GTE Personal Communications Services, Ameritech Cellular Services, Bell Atlantic Mobile Systems, Nynex Mobile, AT&T Network Systems and Isotel Research Ltd. jointly announced a hybrid wireless service that may provide the encouragement users need to begin testing wireless data.

## Sweet relief

Many wireless vendors had adamantly opposed joining the two services. "This should take a lot of the edge off the criticisms [the CDPD industry] has received," said Chuck Parrish, general manager of GTE Personal Communications Services' mobile data services.

The hybrid service, which

has been presented to the standards body CDPD Forum, Inc., is set to go into beta testing in the spring, Parrish said. It should be deployed and running before the end of this year, he added.

"The potential impact is enormous," said Robert A. Balgley, vice president of sales and marketing at Wireless Telecom, Inc. in Aurora, Colo. Wireless Telecom is one of the first distributors of wireless-oriented technologies. Balgley said the announcement means "users can migrate to wireless more easily" and also more tightly integrate both types of wireless into their company.

In the short term, the hybrid service will let users start nationwide projects without having to wait for CDPD to be in place.

While cellular leader McCaw Cellular Communications, Inc. was missing from the announcement, it is considering the proposal, according to Kendra Vandermuehlen, general manager at McCaw's wireless data division.

# Dictatorship

CONTINUED FROM COVER 1

a nickel of the \$50 million budget without a signature from Eager or a designated IS vice president. Outside of IS, Eager has secondary signing authority on all hardware as well as software purchases.

Under another of his mandates, a single team of IS staffers — and no one else — is authorized to make system changes. Soon, staffers will be held individually accountable for system errors.

## Unconventional but effective

In and of themselves, Eager's management tactics are not especially new or imaginative. Eager himself concedes, "None of this is rocket science."

What is noteworthy, however, is how well his tough-love management style has worked at a time when much of the business world is enamored of teams, coaches and decisions by consensus.

"In a turnaround situation, I didn't feel like empowerment was the right strategy," Eager said recently. "You can evolve to a republic later, when everyone is ready to defend and obey the constitution."

So far, the contrarian strategy is paying off, and Community Mutual's IS organization is shaping up. By April, for instance, the company plans to strike Ernst & Young from its IS payroll. When Eager arrived at the insurer, it was paying the consultancy \$350,000 a month to manage its IS operations.

Operational stability is also on the rise. By the end of 1994, the number of batch system production errors had decreased by 65%, thanks largely to what Eager called incessant hammering on quality.

The improvements have not gone unnoticed in the company's business units.

"Before Bill came here, there was a lot of treading water. There were an awful lot of folks in Bill's area that spent all their time explaining why they couldn't do something, and things weren't getting done," said Tom Mowry, vice president of government programs.

"What Bill has done," Mowry added, "is install some discipline in the IS shop. He's definitely assigned accountability."

Other IS organizations could benefit from doing the same, according to Kay Redditt, president of CogniTech Services Corp., an IS management consulting firm in Columbus, N.C. In a recent study of 90 companies with annual revenue of \$50 million to \$42 billion, Redditt found a direct correlation between decisive, demanding IS managers and high corporate profit margins.

"Market leaders are decisive, demanding and confident. They consult with others, but they make decisions on their own," Redditt said. "More and more IS organizations are putting them into place [because] consensus decision-making is the worst when it comes to a company's financial performance."

"The politically correct empowerment thing is nice, but it will not get you where you want to go quickly," agreed Jerry Loev, president of CSC Information Management Consulting in New York. "In a turnaround situation, you have to establish new rules of the game very fast."

Other rules Eager has established in the name of or-

ganizational improvement include the use of a single, standardized application development and testing methodology to replace a largely helter-skelter set of procedures. At one point, he said, he discovered that five of nine separate systems development groups were making simultaneous but uncoordinated changes to the same core processing programs.

## IS management left in the cold

The only thing worse than that, Eager recalled, was finding out shortly after he arrived that what Community Mutual's management regarded as the company's systems salvation — a \$30 million managed care systems project under development with IBM — was being conducted without any IS involvement whatsoever. Fed up with the IS department, Community's business unit managers had secured top management's approval to go around IS to develop a system on their own.

Subsequently, Eager integrated the project into a more comprehensive corporate IS strategy. He also hired the former IBM system architect in charge of the project to oversee the managed care system, which is now under the auspices of IS and will eventually replace a significant portion of Community Mutual's legacy systems.

But Eager's turnaround is far from complete. In December, Community Mutual announced plans to merge with The Associated Group, a somewhat larger and highly decentralized insurance company based in Indianapolis. Once combined, the new company's IS organization will have a budget of approximately \$200 million and a staff of more than 800, according to Eager.

"The merger has created a lot of uncertainty. It's also created a lot of urgency," Eager said. A year ago, he added, Community Mutual's IS group "wouldn't have had a prayer of survival. Now, we have a chance to be a player in the merged organization."

**"The politically correct power thing is nice, but it will not get you where you want to go quickly. In a turnaround situation, you have to establish new rules of the game very fast."**

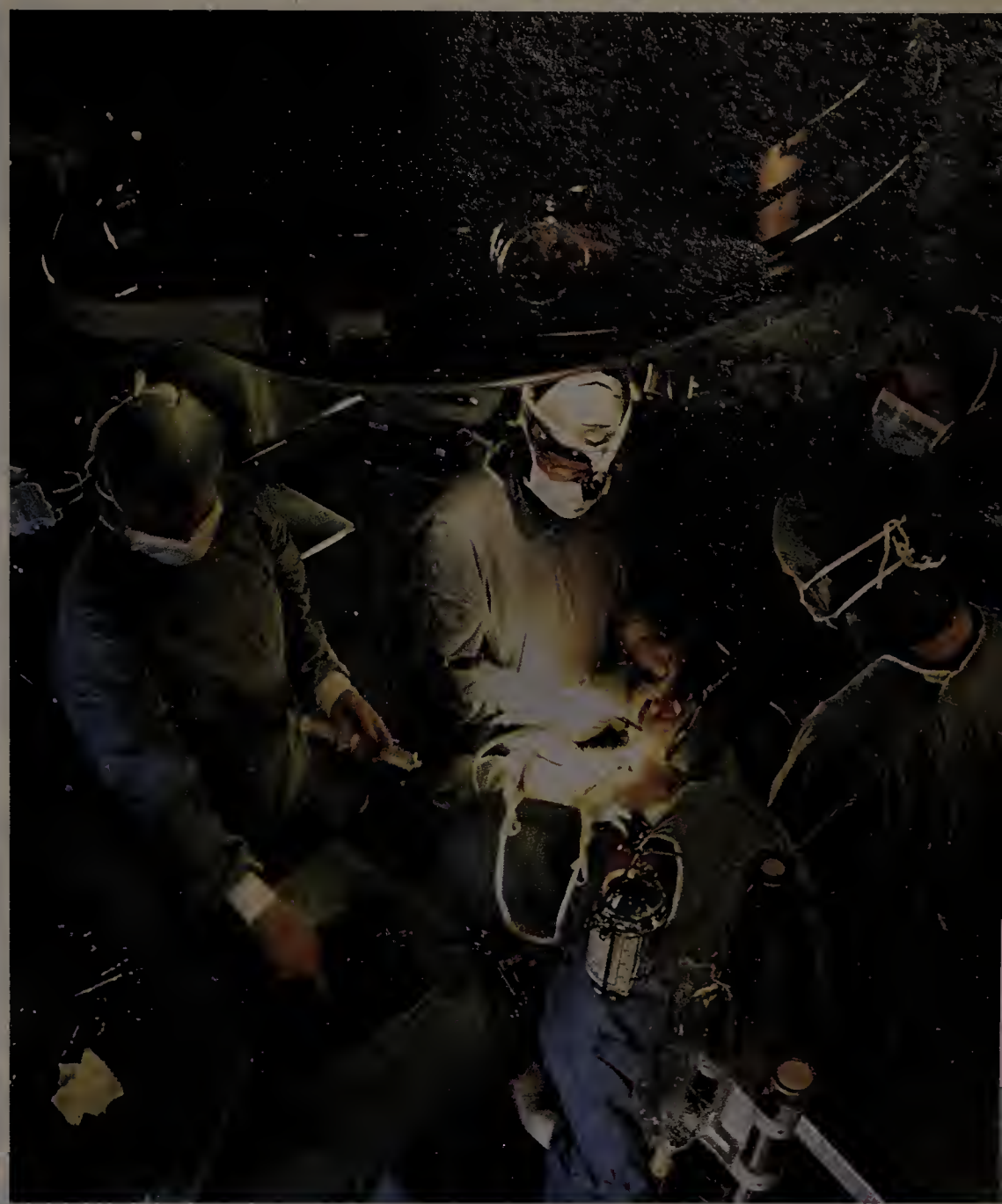
— Jerry Loev, CSC Information Management Consulting



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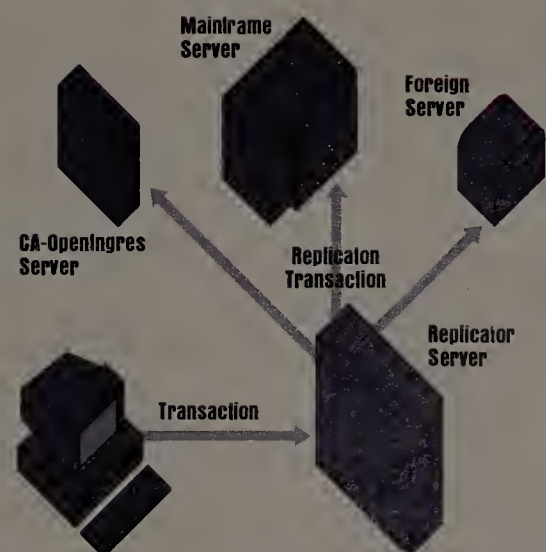
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# Info highway hits technical detours

By Gary H. Anthes  
WASHINGTON

Building the information superhighway has become a bipartisan ambition, with both political parties and every interest group singing its praises. But one Washington organization recently splashed

some cold water on the project, saying the global broadband "meta-network" is up against some formidable technical obstacles.

The General Accounting Office in a recent report said the data highway faces three technical challenges: protecting privacy and security, enabling interoper-

ability and ensuring end-to-end reliability. In particular, the GAO said the superhighway is off to a poor start when it comes to interoperability and reliability.

Today's telephone, cable and wireless networks form the foundation for the future superhighway, but they are not compatible, the GAO said. "The principle

shortcoming of the existing communication infrastructure is its inability to provide integrated voice, data and video services," the report said. "A business user requiring [all three] may have to use three separate networks."

The GAO noted that the industry is rushing pell-mell to introduce new services. Unfortunately, much of the new technology is based on "ill-defined, anticipatory or competing standards, thereby further complicating efforts to achieve interoperability," the report said.

"The appalling lack of interoperability in the computer world is the millstone that will drag down American solution providers," said Dan Lynch, chairman of Interop in Foster City, Calif. "It's hard enough to build applications to one architecture. Users are crying for seamless solutions."

"We have seen a bewildering array of products that cannot interoperate [at the] network operating systems level, at the protocols level and at the end-user appliance level," agreed Internet pioneer Leonard Kleinrock, chairman of the computer science department at the University of California at Los Angeles. "Nevertheless, the Internet has been enormously successful in serving a vast number of users in a variety of critical ways, so the users are finding ways around the interoperability problem."

Eric Schmidt, chief technology officer at Sun Microsystems, Inc., said the government should take steps through the regulatory process to guarantee open access to the network. "The policy should be that whenever customers do not have a choice, [regulators] can intervene to create a choice—but not to mandate it or to design it," Schmidt added.

Existing wide-area networks that will form the foundation for the superhighway are not as reliable as they should be, the GAO said. "A growing number of major outages have raised concerns, triggered losses of service, potentially risked lives and affected the economy," the agency said.

And the problem is likely to worsen as increasing network complexity makes it harder to diagnose and correct problems, the GAO said.

"The issue of end-to-end reliability seems to me to be a red herring," Kleinrock said. "Sure, the [Internet] slows down in a painful way at times, but it continues to function and to serve an enormous load. In fact, the distributed nature of the network provides considerable redundancy and resilience in its operation."



## Vital stats

The Internet links  
59,000 networks, 2.2  
million computers and  
15 million users in 92  
countries, according to  
the GAO.

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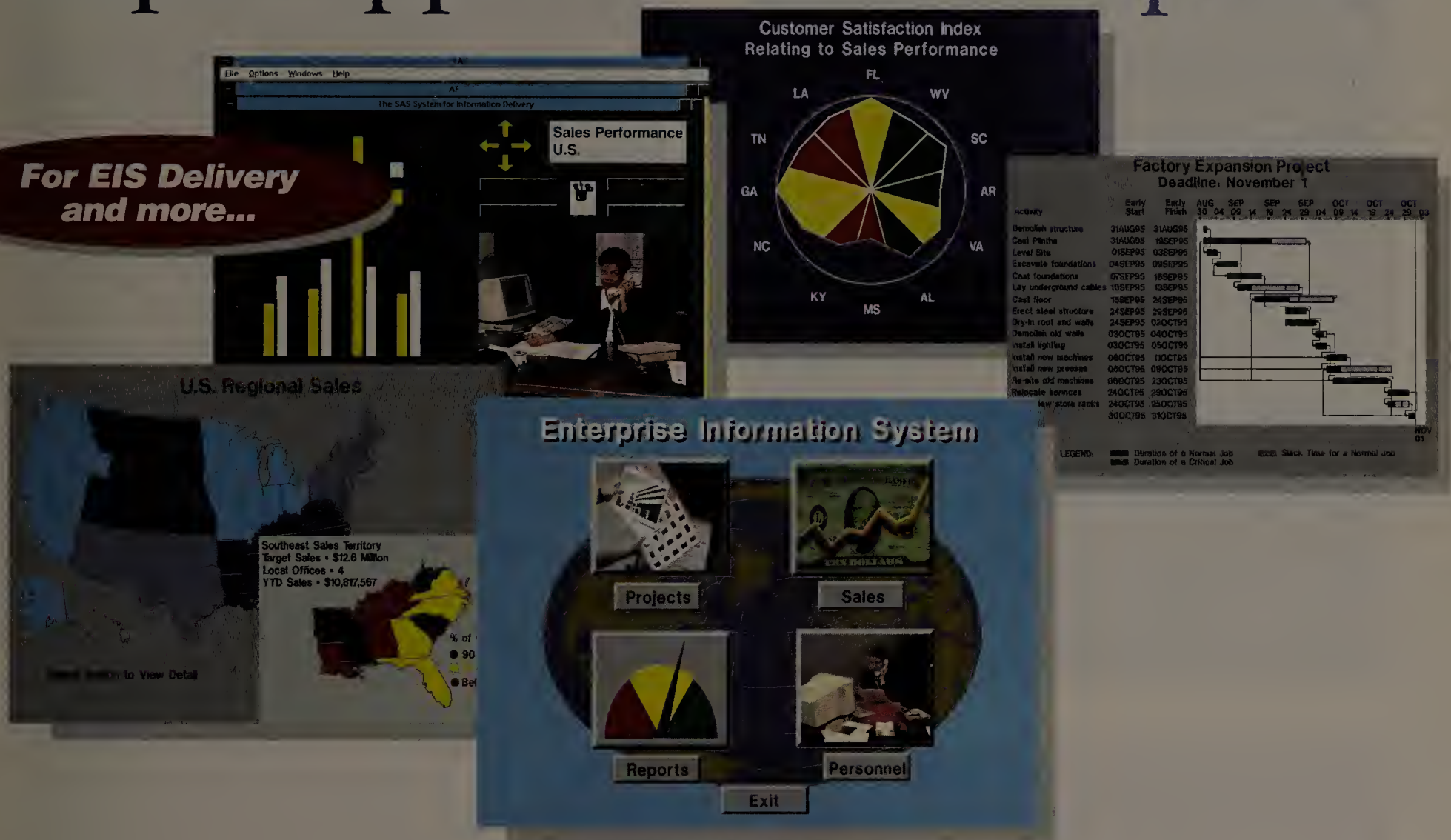
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# HP runs interference for OLTP users

By Jean S. Bozman  
CUPERTINO, CALIF.

Users are having one heck of a time tying together the threads of distributed computing, and HP knows it.

Last week, Hewlett-Packard Co. unveiled its new Middleware Engineering

Initiative, a marketing and consulting services plan for helping customers navigate the rocky road from mainframes to Unix servers for on-line transaction processing (OLTP). Legacy OLTP applications typically run under IBM's CICS transaction monitors on mainframes.

The program is intended to address

user concerns about reliability, security and performance, which HP officials said has slowed adoption of distributed computing software for OLTP. A small group of early adopters — numbering in the hundreds worldwide, analysts estimate — are deploying distributed mission-critical OLTP systems.

The challenge of moving to distributed OLTP from the comfortable world of mainframes is complex and difficult. John Daly, a senior analyst at Summit Strategies, Inc. in Boston, said HP's new program addresses users' fears that distributed OLTP will result in decreased security and reliability as well as slower performance.

The plan will give HP users a one-stop shopping advisory service as well as direct assistance from HP and its software and systems integration partners. Starting this month, customers will also be able to dial an 800 number for referral to OLTP middleware vendors.

Users agreed that many middleware products are practically invisible. "Not only is it not self-explanatory, but people have to dig to get the information out," said Doug Eltoft, director of

## Helping hand

Software vendors lending support to HP's middleware program include Open Environment Corp. in Cambridge, Mass., Orbit Ltd., a CICS specialist in the UK, and BS Conversions, Inc. in Oak Brook, Ill.

network operations at the University of Iowa's College of Engineering in Iowa City. Eltoft's network has more than 150 HP workstations, and he is working to deploy the Open Software Foundation's Distributed Computing Environment software. "How can you sell something people don't know about?" he asked.

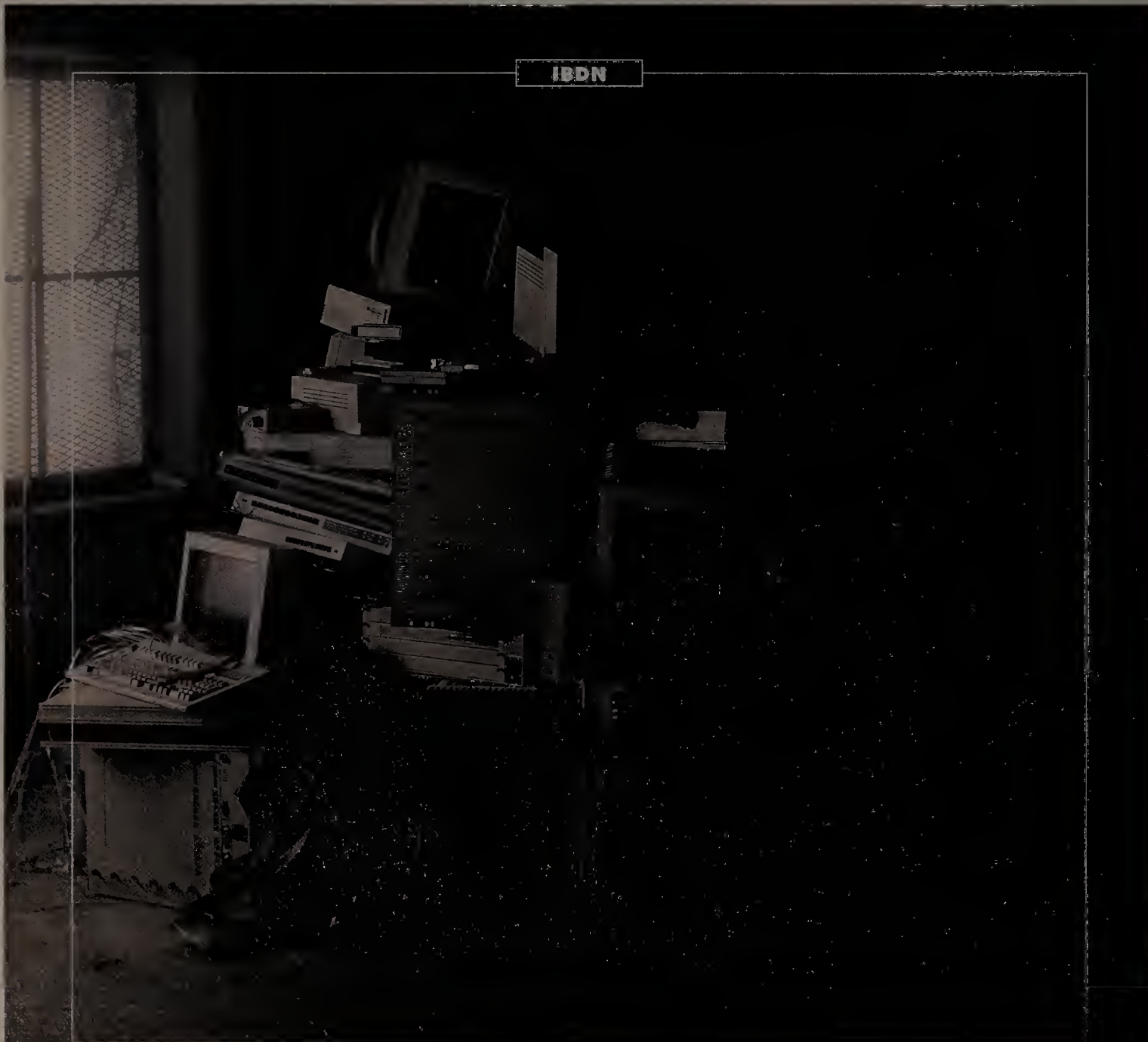
## No vendor an island

Coordination with other vendors is another key to middleware success. "It's a sign of recognizing that this is a major problem," said Judith Hurwitz, president of Hurwitz Consulting Group, Inc. in Watertown, Mass. "There's not a lot of [middleware] experience out there. And when you're trying to integrate five or six different technologies from different vendors, a lot of things can go wrong."

HP's new "teleshopping" service will focus on its key middleware offerings, including OpenView network manager, Operations Center systems management platform and new High Availability Clustering software. Encina/9000 transaction monitors cost up to \$45,000; the CICS/9000 monitors cost from \$25,000 to \$178,000. HP and its partners sell associated middleware for open systems networking and application development. HP will also provide consulting services and referrals to systems integrators capable of linking pieces of middleware.

Industry analysts said HP's initiative is timely, given users' worries about moving OLTP applications from mainframes to a network of smaller servers.

"The analogy is that I could go out and build a car from parts, but it would take forever, it wouldn't be that good, and it would cost a fortune," said Nina Lytton, president of Open Systems Advisors, Inc. in Boston. "I would rather be able to jump into the car and drive it."



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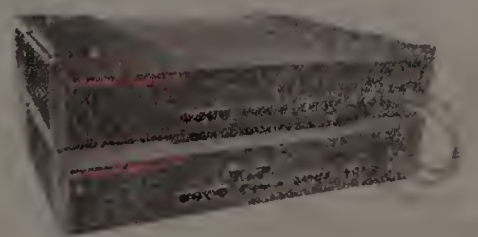
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A black and white photograph of a man in a dark suit and light-colored shirt, looking down with a stressed expression. He is in a meeting room with other people in the background, some of whom are blurred. A laptop is visible on a table to the right.

WHERE DO I WANT TO

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A ROCK. INSTEAD I HAVE  
TO GO INTO THIS MEETING  
AND EXPLAIN WHY MY  
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# If at first they don't succeed . . .

By William Brandel

**L**ike many PC software companies, Microsoft usually does not get the product right in its first attempt. But as time has repeatedly shown, it usually gets there.

"Microsoft has a long history of starting with mediocre products and sticking with them until they have become first-class [products], no matter how long and painful the process," said Jesse Berst, editor of "Windows Watcher," an industry newsletter in Redmond, Wash.

Pain notwithstanding, Microsoft has repeated this pattern and has come to dominate nearly every major product category it has entered.

"It isn't just endurance and resources," said Jeff Tarter, editor of the

Watertown, Mass.-based "Soft Letter" newsletter. "Microsoft's secret is that they listen to customers more carefully than almost any other software vendor on the market."

One example Tarter cited is Microsoft's Office application suite. Initially intended as a simple software application bundle when it shipped in October 1990, "Microsoft garnered input from users that indicated they were on to something," Tarter said. Today, the most conservative industry estimates give Office more than 80% of the application suite market.

This method has resulted in many market successes. For example, Word, Excel, Powerpoint and Access — the programs in Office — were all considered fairly mediocre in their first release. Windows for Workgroups was

derided because it did not run correctly on Novell NetWare LANs. Users put down Windows NT 3.1 for being slow and buggy.

"We will test a Microsoft product the first time out, but we don't use it," said Steve Reifsnyder, an analyst at GE Capital Corp. in Canton, Ohio. "We usually wait until a product is stable and more generally accepted in the market."

## Wary users

In an exclusive *Computerworld* survey of 100 IS managers last week, more than 60% said they did not trust Microsoft to deliver products without bugs. Yet the same percentage said the bugs did not affect their willingness to use Microsoft software.

However, this is a very different standard than what users have applied to

system vendors such as IBM or Digital, said Thomas Christie, a research project manager at Bell & Howell in Allentown, Pa.

While Microsoft's products cost less, they tend to offer less support, and the user usually has to wait for two or three versions to get a solid product. However, users have more choices in how to implement their strategy, Christie said.

"It is the price you pay for more control over the technology you implement," he said.

His company, for example, had to wait 1½ years before it could deploy Windows NT 3.1.

"It didn't cause us any problems because everyone's expectations were pretty low," Christie said. "Quite frankly, people didn't think we'd even be able to get it running on a PC."

## Users happy to ride Microsoft juggernaut

CONTINUED FROM COVER 1

conducted last week, 79% of 100 IS sites consider Microsoft products critical to their companies' strategies, and 52% view Microsoft as important an enterprise partner as IBM, Hewlett-Packard Co. or Digital Equipment Corp.

But only one-third of the respondents felt Microsoft really understood their businesses' IS requirements. And 37% said Microsoft's tendency to deliver products late continues to affect their willingness to use the Redmond, Wash., vendor as a mission-critical vendor. Then again, 61% said late product deliveries do not hinder their plans.

In other words, many users have come to accept the glitches, the delays and the lack of hand-holding as part of the new paradigm of distributed computing.

"Because of Microsoft's grasp of so many markets, we are in some ways forced into a relationship with them," said Cheryl Knoner, a project manager at Clark Oil & Refining, Inc. in St. Louis. However, Microsoft's domination of these markets does not necessarily mean it is able to deliver on all of Clark's needs, Knoner said.

"This never would have happened with an IBM or DEC," said Thomas Christie, a research project manager at Bell & Howell Co. in Allentown, Pa. "If they told you about it, they had that solution, and it worked."

"Am I comfortable like I was with IBM? No," Knoner said. "And their entering so many different markets is definitely a concern to me. If I could ask [Microsoft] to do something, I would like to see them specialize in a couple of areas where they have strengths. They are spreading themselves too thin."

Nevertheless, Microsoft's market position in operating systems and desktop applications, along with its emergence in development tools and servers, has made it a company that IS cannot view the same way as any other desktop vendor. And while most users still have faith that Microsoft is not about to hit the wall (see survey chart, Cover 1), there still are some clear indicators that it perhaps cannot do it all. These include the following:

- Internal struggles between its applications business and its operating systems business over which features to include in what products.
- Competition within Microsoft among product groups for resources to complete projects.

• Repeated delays in shipping major products such as Windows 95 — the next version of Windows — and Exchange Server, a high-end groupware server that Microsoft has positioned as the challenger to Lotus Development Corp.'s Notes.

"I'm concerned that they keep pushing the date back" for Windows 95, said Kevin McKinney, an IS manager at Duracell USA, Inc. in Lancaster, S.C. The delays have been "a hindrance" to Mc-

Kinney because corporate management is asking him for a recommendation on the product, he explained.

Microsoft's broad agenda and its problem with delivering core products on schedule are beginning to affect its historically rosy relationship with Wall Street as well. Citing the Windows 95 delays, financial analysts such as Rick Sherlund, an analyst at Goldman, Sachs & Co., says Microsoft's stock is under pressure in the short haul.

Other analysts, such as Paul Johnson at Robertson, Stephens & Co. in New York, wonder aloud if Microsoft can find the developers to finish its myriad products. "At some point you have to ask, 'Where are they going to find the bandwidth to do all this?'" Johnson said.

While Microsoft's competitive advantages are tied to its ability to leverage its position in different markets, so are its problems. Because of its huge installed base and the number of products that run with its operating systems, products are almost constantly delayed because of ever-increasing beta cycles.

Extensive beta testing is currently holding up Windows 95. Still other projects such as the next-generation operating system Cairo, originally promised for the end of 1993, are held up because Microsoft moves around its top developers among strategic projects.

"The fundamental reason behind Cairo [slipping] is that for 18 months we took people off of it," Jim Allechin, senior vice president of Microsoft's Business Systems Division, said last week. "Literally, it stopped while we did the basics

### Users are not only willing to wait...

Do late product deliveries affect your willingness to rely on Microsoft for mission-critical applications?

Yes 37% No 61%

Don't know 2%

### ...but they also expect imperfections

Do you expect Microsoft's products to arrive without bugs?

Yes 38% No 61%

Don't know 1%

BASE: 100 IS PROFESSIONALS

Source: Computerworld survey



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| (c) OS/2    | (g) Windows    |
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  - 41. Engineering, Scientific, R&D, Tech. Management
  - 60. Sys. Integrators/VARS/Consulting Management
- CORPORATE MANAGEMENT**
- 11. President, Owner/Partner, General Manager
  - 12. Vice President, Asst. VP
  - 13. Treasurer, Controller, Financial Officer

**DEPARTMENTAL MANAGEMENT**

- 51. Sales & Mktg. Management
  - 70. Medical, Legal, Accounting Management
- OTHER PROFESSIONAL MANAGEMENT**
- 80. Information Centers/Libraries, Educators, Journalists, Students
  - 90. Other Titled Personnel

**3. Do you use, evaluate, specify, recommend, purchase:** (Circle all that apply)

Operating Systems

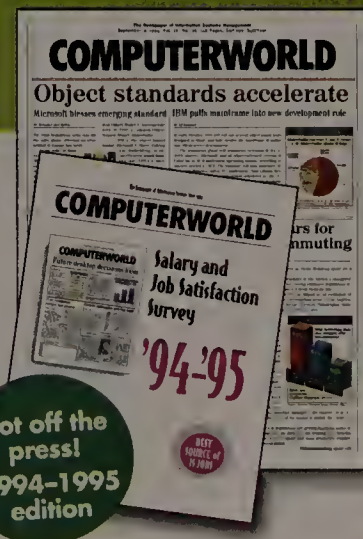
- |             |                |
|-------------|----------------|
| (a) Solaris | (e) Mac OS     |
| (b) Netware | (f) Windows NT |
| (c) OS/2    | (g) Windows    |
| (d) Unix    | (h) NeXTstep   |

App. Development Products

- |                              |                             |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Networking Products

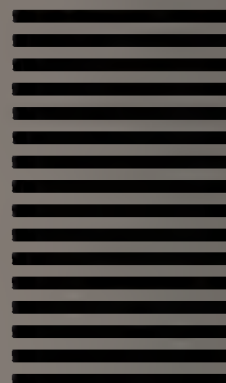
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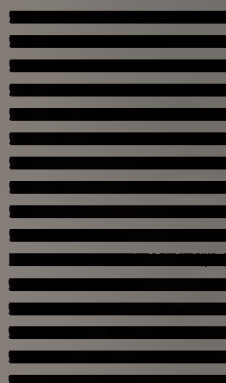
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## Better late than never?

One of the biggest criticisms leveled at Microsoft is about its difficulty in delivering products on time. Some latecomers include:

- **Windows NT** — Originally scheduled for the second half of 1992, Microsoft's first 32-bit operating system with network extensions shipped in August 1993.
- **Systems Management Server/Hermes** — Based on Windows NT 3.5, the product shipped one year late in the fall of 1994. Microsoft cited a need for a longer beta testing cycle.
- **Chicago/Windows 95** — In early 1991, Microsoft touted a Windows 4.0 release that would include an object-oriented file system and ship by the fourth quarter of 1993. Eventually renamed Windows 95, it

was slated last year for a fourth-quarter 1994 release but has been delayed twice. Microsoft blamed the delay on the need for more beta testing. The shipment target is now summer or fall of this year.

• **Exchange Server** — Based on Windows NT, this high-end groupware server was supposed to ship by the end of 1994. Microsoft recently said it will not ship until midyear.

• **Cairo** — This version of Windows NT, equipped with an object-oriented file system, is unlikely to ship before mid-1997, according to some analysts. It was originally slated to ship in the first half of this year. A Microsoft official said the delays stem from moving developers off the Cairo project to complete other work. — *William Brandel*

like OLE 16/32-bit interoperability code and a tremendous amount of focus we put on to Daytona [NT 3.5]."

Allchin insists that using the same team for various versions of NT makes good sense. It ensures continuity, resulting in one high-quality code base. Using different teams on two or more versions of the same code base often results in serious problems, he said.

"We want to ensure that the people who already know the code base [make] the enhancements. It's so much easier when you have one team moving ahead," Allchin said.

Nonetheless, some question this approach to product development because it ultimately holds up other projects. And with Microsoft's ambitious

agenda, that could be viewed as spreading resources thinner.

But many who have followed Microsoft's maneuvers or competed with the company have only respect for the vendor's prowess.

Like any software company, Microsoft is not without its share of "bandwidth issues," said Jesse Berst, editor of "Windows Watcher," a newsletter in Redmond, Wash. For example, he cites competition for Gates' attention and delays caused by waiting for Gates' feedback. He also said Microsoft has demonstrated an inability to coordinate multiple overlapping marketing activities and technical initiatives.

"Having said that, they do a better job at this difficult task than any other

big company I know," Berst added.

"If you look at the behemoths that have fallen on hard times, they became insular and risk-averse. That's not happening at Microsoft," said Richard W. Oliver, a professor at Vanderbilt University's Owen Graduate School of Management.

That leads to the broader question of whether Microsoft, arguably the

most influential and powerful player in the computer industry, can conquer new worlds without losing the razor edge and focus that got it this far.

Gates says his company is sticking to its core competency — writing software. "We don't do chips, we don't do hardware, we're not going to build networks or make fiber or

make movies," he said (see page 32).

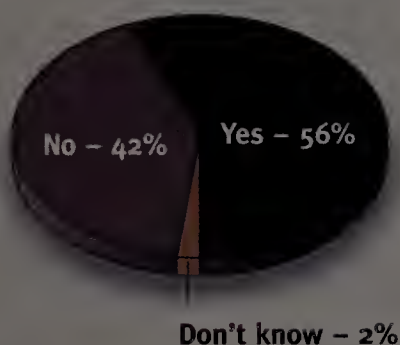
Ironically, Microsoft's rivals and competitors are the most adamant about Microsoft's ability to pull off the big agenda.

"The same [bandwidth] criticism could be made about Lotus or Novell," said Glen Mella, a vice president of business applications at WordPerfect, the Novell, Inc. Applications Group.

"You don't bet against Microsoft in this industry," said Jeff Papows, vice president of the communications products group at Lotus, as he flung open a cabinet in his office. The cabinet hid a recent *Fortune* magazine with Gates' face plastered on the cover. "I put this here to remind myself of that fact every day," he said.

### Precautionary measures

Do you factor unannounced product delays into your planning?



BASE: 100 IS PROFESSIONALS

Source: Computerworld survey

## Financial outlook shows some clouds on horizon

By Neal Weinberg

**W**hat is the next number in this sequence: 66, 53, 35, 20...?

This is not an esoteric SAT question — it is something far more real and troubling for Microsoft. The numbers describe a dramatic slowdown in the percentage rate of its earnings growth in the past four years.

And the short-term prognosis is not all that rosy, with many analysts downgrading Microsoft's stock from a Buy to a Hold because of the company's delays in shipping Windows 95. Other than that relatively minor blip, however, Microsoft's fundamental financial health is not in question, even as the company continues to fund new projects.

### Can't keep up the pace

Microsoft has publicly stated it cannot keep up the torrid pace of the past five years, during which annual revenue grew from \$1.1 billion to \$4.6 billion — a 42.1% annual growth rate. By comparison, Novell grew 32% in the past five years, Oracle Corp. grew 28%, and Lotus grew 16%.

For now, analysts see the company leveling off to a sustained period of growth of between 20% and 25% a year. But to accomplish that, Microsoft has to forge ahead into new revenue streams to continue its relentless drive to stay on top of the computer software food chain.

"The software markets are becoming saturated," said Michael Cusumano, a professor at MIT's Sloan School of Management in Cambridge, Mass. "If these guys didn't go after new segments, like multimedia and on-line information systems, they'd stagnate and collapse."

That is not likely to happen, analysts said, because Microsoft has two things

going for it that other companies do not: \$3.8 billion in cash and Bill Gates in charge.

The company will remain on top "as long as Bill Gates is there with the reins, actively engaged and consumed in building the company," said Richard D. Owens, an analyst at Pacific Crest Securities in Portland, Ore.

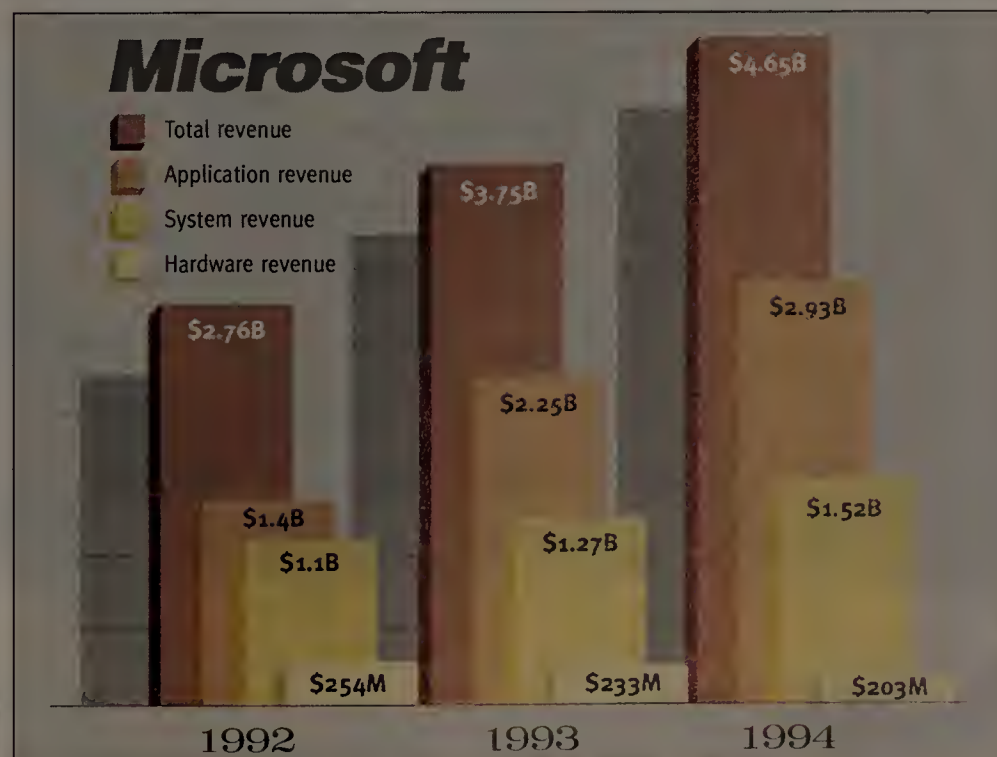
"Microsoft happens to be in the fortuitous position where cash flow from existing business can fund experimentation for long-term benefits," said Michael Geran, an analyst at the Pershing Division of Donaldson, Lufkin & Jenrette Securities Corp. in New York.

"They are continuing to reinvent themselves, to find ways outside of their traditional business to continue to grow. The sheer size of the company allows them to do that. They can throw money at a project until they get it right, and if they don't get it right, they can buy Intuit," Owens said, referring to Microsoft's pending \$1.5 billion purchase of Intuit, Inc. in Menlo Park, Calif. Intuit produces Quicken, the popular financial software program.

Windows 95 will not provide a significant bottom line boost until fiscal 1996, but Microsoft still has shown the uncanny ability to churn out one profitable quarter after another.

A case in point is Microsoft's decision to take office software such as Excel and Word, package it into Microsoft Office and market it maniacally. The result: a smash hit, with more than 6 million units shipped.

Microsoft also surprised analysts in its latest quarter, with profits increasing 29% and revenue jumping 31%. Strong holiday PC sales boosted Windows 3.1 and consumer products such as the Encarta CD-ROM encyclopedia. Microsoft Office continued its strong sales, and Windows NT gained ground.





A black and white photograph of a man in a suit, looking directly at the camera with a frustrated expression. His right hand is pressed against his forehead, and his left hand is near his chin. The background is dark and out of focus, showing some vertical lines.

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# Gates: Quality key to software futures

Computerworld senior editor Stuart J. Johnston recently interviewed Microsoft Chairman and Chief Executive Officer Bill Gates about his views on the company's business plans, future and potential for continued success.

**Q** Isn't something like starting your own on-line network pretty far afield from the businesses you've entered to date?

**A** So far, we've had major success in the new areas we've moved into. In the CD-ROM world, we started in 1986. [In] graphical user interface, we started in 1984.

We think software has a major role to play in some of these new communications opportunities, including very high-speed connected networks, and we're investing a massive amount of money in that and hiring lots of great people.

As you do tools for publishing within a corporation — so that people can share information — there's no difference between a private network and a public network. In terms of doing E-mail and competing with Lotus and doing server products, we're in the business of doing essentially corporate on-line services. And so why wouldn't it be wise to take that technology and use it for a public network as well?

**Q** How do you avoid getting into areas that may seem like logical extensions but in the long run end up being expensive learning experiences?

**A** We like to try and use our software expertise in new areas. And frankly, in some of these new areas we go into, we won't do as well as we expect. We just have to be smart about figuring out when that is [and] deciding if we can fix it or focus those resources somewhere else.

So the fact that you've been patient and had big successes, in a sense that's dangerous. It means you can look at anywhere you're not doing well and say, "Oh, well, we'll just be patient, and this will work." I'm sure we're going to learn about this on-line business as we go.

**Q** I notice that the charter for Microsoft Consulting is not overly broad.

**A** It has been extremely valuable to us in terms of understanding very large enterprise situations and getting good feedback on our products and being able to put people in to help get a customer going in terms of using the kind of building-block technology that we put out. But our core area is building software products. That's why we have defined an upward bound on it.

**Q** So it's not going to develop to the extent IBM's consulting organization did?

**A** Not [to that extent], or even the size that Oracle has built theirs up to.

**Q** Is there a concern about finding high-quality employees?

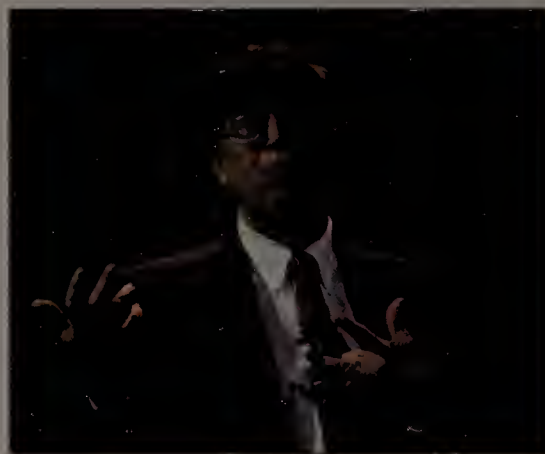
**A** Every day. The quality of the people we bring in is fundamental. And when I'm telling [groups] that they can grow and do new things, the critical path is finding people that meet our standards.

So we're always very aggressively recruiting, and our ability to do that will be key in determining how quickly we can do new things. We have a strong campus recruiting program. And we've been very lucky over the years. We did very, very well on recruiting last year, both getting lots of smart people out of college and bringing in world-class experts in areas

like graphics or database and research. But I'm just hoping we can keep that up, because it is necessary to get the things done that we want.

**Q** Is there a limit to how big the company can get?

**A** Certainly there are limits here. We're only pursuing certain areas, and these are all supercompetitive markets. We make it clear that our approach with financial people is very, very conservative. We always say there's a good chance that we won't be as profitable as we've been, and we certainly won't be growing percentage-wise as fast as we've been. It's just part of our outlook that we never brag about our future.



HANK DELESPIASSE

**Q** How much do you plan to grow in the near future?

**A** You won't see us growing our [research and development] group all that dramatically. Maybe over the next three years R&D will grow at 30%. That's a lot of people, but that's 10% a year.

And personnel-wise, that'll be our area of highest growth. Everything else we'll try to keep below that. We [also] expect the [Intuit] merger to be approved, but

that's a new division, so you ought to take the baseline essentially as Microsoft plus Intuit. We will have a good-size jump as soon as the merger is effective, but we'll [also] have a good-size jump in revenue.

**Q** As Microsoft creates more complex software, is there a danger of developers getting caught up in endless meetings and getting less actual work done?

**A** We break our projects down into reasonably small groups, and we put all the different skill groups together. A long product cycle for us is two years. In many cases it's more like 12 or 18 months. What's the biggest team we have? I think Excel might be 150 people. [On] Windows 95, I think we have 240 or something like that.

**Q** Does Microsoft have a cohesive enough vision that the company could continue to thrive if you weren't there to guide it?

**A** I like to think that the company may be wouldn't be as clever or move as fast without me. But there is a tendency when you're outside this company and just read about it in the press to have an overly grand view of my role in doing things here. There would be a vacuum, and there would be a need for somebody to step in and take leadership.

Somebody would have to be pulling it together, particularly when you get into areas like taking big new risks to do new things, like doing Microsoft Network or the investment in Advanced Technology.

Someone else might be more conservative than I am about those things. But in any two-, three-, four-year sense, we've set our direction, and there'd be plenty of time for someone else to come in and put their stamp on the company.

## Microsoft employees juggle work, family obligations

By Neal Weinberg  
and Stuart J. Johnston

John Neilson arrives at his Microsoft office at about 5 a.m. and typically works until 8 p.m. Even if the sun were shining in rainy Redmond, Wash., he might not see it for days on end.

He used to go into the office on weekends as well, but the eight-year veteran has joined the growing ranks of Microsoft employees who have turned 30 and started families. Neilson, 33, has a daughter, and his wife is expecting twins in May.

But thanks to an Integrated Services Digital Network line that Microsoft installed in his home for high-speed access to the company's corporate network backbone, Neilson

wakes up at 4 a.m. or 5 a.m. on weekends, works until about 9 a.m. and then unwinds with his family.

### Older and better

Neilson, general manager of the organization customer unit, said Microsoft's Generation Xers who are fresh out of college log more hours than the thirtysomethings. But he and his counterparts, like aging ballplayers, compensate with savvy.

"People with families really focus on what's most important. They're



Microsoft's John Neilson is able to balance his job and family life by working from home

working smarter, not necessarily longer," Neilson said.

Because Microsoft employees — from Chairman and Chief Executive Officer Bill Gates on down — work infamously long hours, burnout is always a risk. But Stephen T. McClellan, an analyst at Merrill Lynch Global Securities Research in San Francisco, said the Microsoft model is not a hierarchical, crack-the-whip sweatshop. It is a flat, open culture where

people work on exciting projects. "It tends to be pretty voluntary,"

McClellan said. "The toughest challenge is the one you give yourself."

Yet Gates said he pays attention to the employee burnout issue as well.

"We're careful if someone is working at a pace that's not sustainable to try to definitely get them to avoid that because we're here for the long term," Gates said recently. "Most people here do have families, and yet they love their jobs, so they're always balancing their time in an effective way. The tools, like laptops and off-line E-mail, actually do have an impact."

Mike Murray, Microsoft's vice president of human resources and administration, said, "You may have cut back from a 14-hour day to a 10-hour day, but we expect the same level of intensity as we always have."



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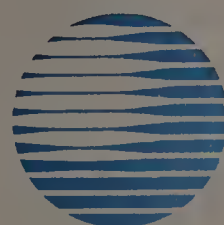
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## Oracle seeks to revive app sales

No. 2 position in client/server race not enough

By Kim S. Nash

Oracle Corp.'s applications group — both products and managers — will be under a microscope between now and the end of March, facing perhaps its most intense internal scrutiny ever.

The goal is to jolt what have been comparatively slow sales of Oracle's financial, human resources and manufacturing modules (see chart).

"No, I'm not happy with the [applications] group's performance," acknowledged Ray Lane, president of worldwide operations at Oracle. "We had done pretty well in the business when we had no competition, but [SAP AG's success] has given us a wake-up call."



**Oracle's Ray Lane:** SAP AG's success has given Oracle a 'wake-up call'

form better.

"The way I see it, the elephant's been stung, and it's about to stampede... but is thinking about which way to run," Bensman said, explaining his job.

For the past year, technological and internal organizational troubles at Oracle have dampened user enthusiasm for the applications, which otherwise "have a lot of potential," said Clare Gilan, an analyst at International Data Corp. in Framingham, Mass.

Historically, "Oracle clearly did not have the top-to-bottom corporate backing that SAP has to push applications," Gilan said. "Oracle itself is very visible, but its apps

aren't."

Ironically, one of the biggest user concerns is a visual one: a lack of a graphical user interface (GUI). GUIs on the packages were due out before the end of last year but are now slated to be delivered in phases

this year.

No GUI means Oracle packages are tougher to modify than rival offerings from SAP, PeopleSoft, Inc. and others, noted a systems manager at a large Oracle site that uses several vendors' packages.

Graphical versions of four Release 10.5 Oracle modules are now in beta testing and slated to ship in April, according to Lane.

"We've spent the last six months trying to make the decision of [whether to put GUIs on] Release 10 or Release 11," he said. "And it took close to a year to actu-

ally get it done."

Critics say such delays are evidence that Oracle is too big to concentrate well on any one product area, a notion that Lane denied. "Last year at this time, we focused on database," Lane explained. "We were losing share to Sybase, and now we've turned that around. Now it's applications' turn. All management attention is focused on applications."

### On the people front

Management upsets within the applications group have not helped. For example, Greg Brady quit last December as vice president of worldwide applications marketing; he has not been replaced.

One item under consideration is reorganizing Oracle's sales force, Lane said. Now, database sales — compared with application deals — are generally faster and more lucrative for individual salespeople, he said. "They ask themselves, 'Will I starve if I don't sell applications?'" and the answer now is "No," he said.

Oracle plans to take action based on Bensman's recommendations after his study is completed March 31.

### Doing a double take

Sales of Oracle's client/server applications grew faster than the 18% industry average, but SAP AG increased its lead over Oracle by more than doubling sales from 1993 to 1994

**TOTAL 1994 MARKET VALUE: \$5.96 BILLION\***

	1994 MARKET SHARE	1993-1994 SALES GROWTH
SAP AG	8.1%	167.8%
ORACLE	2.5%	26.3%
PEOPLESOFT	1.8%	176.3%
COMPUTER ASSOCIATES	1.5%	26.8%
IMRS	0.8%	66.7%
PLATINUM SOFTWARE	0.7%	57.1%
GREAT PLAINS SOFTWARE	0.7%	38.7%

\*License and maintenance fees only; consulting and services revenue excluded

Source: International Data Corp., Framingham, Mass.

### Cut to the chase

Oracle may have held on to the No. 2 slot last year in the client/server applications race, but the position is "unacceptable" to Oracle, said Jim Bensman, an independent consultant and former SAP executive whom Oracle hired to figure out how the applications group can per-

### Briefs

#### SAP hits top revenue

SAP AG passed the \$1 billion mark with revenue of \$1.1 billion for 1994. The Wall-dorf, Germany-based applications company also announced net profit of \$173.5 million. Its North American subsidiary, SAP America, Inc. in Philadelphia, finished out the year with \$367 million in revenue, up by more than 150% from 1993.

**SHORT TAKES** Database management systems vendor VMark Software, Inc. in Westboro, Mass., and Burlington, Mass.-based client/server development tool maker Easel Corp. have signed a definitive agreement to merge... John Connors has resigned as president of U.S. operations and vice president of Merisel, Inc.

## Gateway hard at work on hardware, support plans

By Jaikumar Vijayan

PC mail-order giant Gateway 2000, Inc. is devising some strategy changes to boost its presence in corporate markets and attract the confidence of large accounts.

In late March or early in the second quarter, the North Sioux City, S.D., vendor will cap a year of quiet preparation for the corporate market by announcing a range of 90- and 100-MHz Pentium-based systems. The systems will feature Peripheral Component Interconnect technology and bundled systems management and remote diagnostics software.

The hardware announcement will also include expanded service, support and marketing plans aimed at Gateway's major accounts.

To succeed, however, Gateway will have to work hard to overcome its less than sterling reputation in the PC business, analysts said. In the past, the company has been plagued by complaints on a variety of issues, such as systems and parts reliability and a general lack of responsiveness to customer gripes.

According to Gateway, the announcement will mark the comprehensive rollout of a strategy it has been piecing together for some time now.

"We have had this focus for the last 12 months. We've been structuring focused teams by industry, and we are moving to implement

the kind of things" — such as greater product reliability and support — that major accounts will look for, said Todd Osborn, vice president of sales at Gateway.

For instance, to provide the kind of eustomized service that corporate users expect, Gateway is scouting for third-party service providers. It has already set up a dedicated customer service and technical support group for customers with more than 75 Gateway systems.

It also recently increased its support staff, opened a support facility in Kansas and appointed Jim Collas, a former vice president of engineering at Gateway, to oversee customer support and technical service.

### Stepping up

To address parts and component quality issues, the company said, it has created a supplier quality certification program and a manufacturer quality program. These steps are vital for Gateway's midrange ambitions to have any chance at succeeding, according to analysts.

"It's a big opportunity for them. They don't have a big presence in the corporate or consumer markets right now... two opportunities they have missed by focusing on the direct-response business," said Richard Zwetckhenbaum, an analyst at International Data Corp. in Framingham, Mass.

"But they are going to have to build a major, rock-solid support infrastructure. They are going to have to contract with a very reputable third-party service organization and maintain a differentiated product line" if they want to succeed in this market, Zwetckhenbaum said.

**Hardware vendors team with service providers.** See page 43.

### Leading the way

The P5-100 based on Intel Corp.'s 100-MHz Pentium leads Gateway's corporate market strategy. It includes the following:  
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**Cache:** 256K bytes.  
**Hard drive:** 1G byte.  
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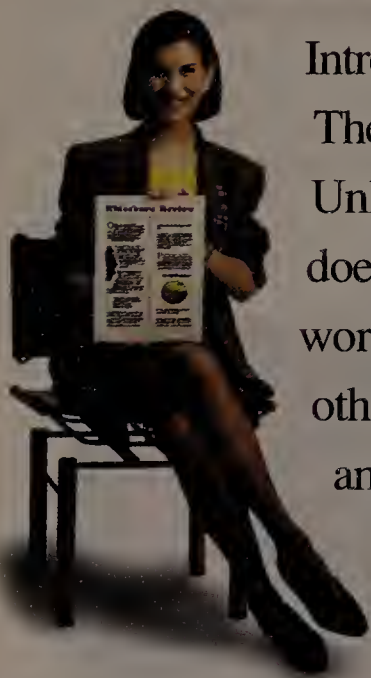


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### Complete integration vs. partial integration.

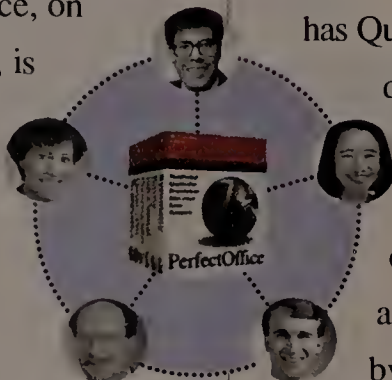
The programs in PerfectOffice have a consistent

interface. So do the programs in Microsoft Office. But PerfectOffice uses more common code and components, reducing system requirements. Plus, it supports Windows technologies like OLE 2.0 in more programs than Microsoft Office. Ironical, isn't it?

### Automatic software vs. manual software.

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PerfectOffice is so automatic, it even corrects spelling errors as you type. We know, so does Microsoft



	PerfectOffice 3.0 Standard Edition	Microsoft Office 4.2 Standard Edition
Programs have consistent interfaces	YES	YES
Integrated E-mail, calendaring and scheduling**	YES	NO
Workgroup publishing features	YES	NO
Number of applications with OLE 2.0 support	Four	Three
Number of applications with on-the-fly spell checking	Three	One
Automated tasks that work independent of applications	YES	NO
Grammar checker can rewrite entire sentences	YES	NO
Intelligent find and replace	YES	NO
Ability to record scripts (macros) across applications	YES	NO
Supports both Visual Basic & AppWare programming tools	YES	NO
Six months of free, toll-free technical support*	YES	NO

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## Editorial

## A 'net loss

A friend of mine called me last month with the good news that he'd landed a job heading up PC and network support for the Boston office of one of the nation's leading consulting firms.

As the conversation drifted from congratulations to specific details about the company, I asked about the firm's use of the Internet. It seemed like a very useful and logical medium over which the firm could conduct various aspects of its national and international business, much of it IS consulting.

"Well, let's just say we're not going to do a lot on the Internet just yet; some mail, but not much more," he said, adding that there were a lot of security concerns. He said he feels firewalls are nothing more than minor obstacles for hackers who live for such challenges.

Obviously, this consultancy isn't ready to join the ranks of General Electric, IBM or even the San Diego Supercomputer Center, which have had their Internet firewalls breached by hackers. And let's face it, if these types of organizations can't protect their Internet enclaves, what are your chances of doing so?

Complicating matters is recent news that hackers have developed a very sophisticated means of electronic intrusion that has security experts frantically scrambling to educate users about the danger and developing antidotes. The new threat is made possible by a basic flaw in the Internet's original design. That design didn't take into consideration the possibility that the Internet might become a commercial highway; it was supposed to facilitate the exchange of files among academics and little more.

Could it be that as a result of the justified alarms set off by recent attacks, the Internet can never become that commercial highway? Security experts claim that improved encryption technology will mitigate this latest round of 'net threats. But remember, hackers live for the thrill of a challenge.

There may be an even more compelling reason to avoid the Internet as a commercial medium. Very few companies are making money with it. As reported [CW, Jan. 23], some retailers and "virtual mall" owners have shuttered their electronic storefronts.

Pioneering cyber-merchants have found plenty of window shoppers, but not many are willing to expose their credit-card numbers to an insecure environment to make purchases. In addition, it is still very difficult to find your way around virtual malls, even if you are a sophisticated user.

Because of these security concerns, network managers should fight for a slow and steady pace in the Internet race. If and when there is a security breach, the fingers will almost inevitably point to the internal networks and the people who build and manage them — you. This is one good reason for concern, unless of course your company's data isn't worth protecting.

*Bill Laberis*

Bill Laberis, Editor in Chief  
Internet: blaberis@cw.com



## Letters to the editor

## OS/2 delivers what users want

Regarding "IBM kernel pops" [CW, Jan. 9], neither our microkernel implementation nor our product delivery plans has changed. OS/2 for the PowerPC is a microkernel-based operating system. It will support DOS/Windows and OS/2 applications when it is introduced, and over time we will add application support for other operating environments, including Unix, as promised.

Our plans for delivering that environment have evolved with customer feedback — a far cry from the massive scale-back you describe.

In the first release of OS/2 for the PowerPC, we'll provide binary support for the DOS/Windows environment, we'll provide consistent 32-bit application programming interface OS/2 applications, and we'll add support for other important application interfaces over time.

It's what our customers want, and it's what we planned to deliver all along.

Jo Ann Sager  
Director of public relations  
IBM Personal Software Products  
Armonk, N.Y.

I have been an OS/2 advocate for many years now, and it is way too early for IBM to call it quits on OS/2. With all the delays Microsoft continues to hand out, OS/2 should be able to pick up a larger market share. But for OS/2 to continue for many years, more software makers must support it by developing native OS/2 software. This support is sorely lacking, and unfortunate-

ly, I don't see this changing unless Windows 95 is a complete disaster or at least a dud similar to the original Windows NT.

So the book has not been closed on OS/2, and I hope it will not be closed for some time to come. But if it doesn't get into the mainstream of the computer industry, it will follow the path of Wang and Digital as you mentioned in your editorial ["Breaking points," CW, Jan. 16].

David Clark  
Reston, Va.

## Wise decision

Kudos to Luther Perry, information systems director for Santa Cruz County in California ["Inside Lines," CW, Dec. 26/Jan. 2]. He has the vision to invest his dollars in his group where they matter... at the level where the work gets done.

In my eight years as a computer consultant, I have seen too many companies waste valuable IS dollars on high-end systems for executives and other corporate figureheads. Meanwhile, overworked secretaries and support people languish with old systems.

More corporate IS directors should have the chutzpah to decline requests from top management for the latest technology if they can't demonstrate a need for it. I'll be having some of my clients call Luther Perry for advice!

Ron Moen  
Chicago

## Customers beware

The rules in Bell Atlantic's customer privacy policy ["What you don't know," CW, Dec. 26/Jan. 2] appear to conflict with one another. Specifically, Rule 2 attempts to reassure the customer that the company will "disclose personal information only for limited purposes, such as long-distance billing, fraud prevention and law enforcement."

Very noble. But look at the end of Rule 3: "Allow [customers] to 'opt out' of marketing lists." Marketing lists? I didn't see that listed as a "purpose" in Rule 2. We proceed directly from "need to know" to an implicit intent to sell private information. However the data is repackaged, the end result is the same: full mailboxes. Such an apparent divergence leads one to suspect these "reassurance" efforts. We must all beware marketing ploys that are dressed up to look like corporate change.

Jody Roberts  
Computer Associates  
International, Inc.  
Irving, Texas



■ Computerworld welcomes comments from its readers. Letters may be edited and should be addressed to Bill Laberis, Editor in Chief, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.











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# The people cost of re-engineering

Roger T. Sobkowiak and Ronald E. LeBleu

**T**he headline read, "Microsoft's Bill Gates and crew strategizing how to move IS professionals off Windows and onto the next platform based upon objects." The article began, "This new platform promises incredible leaps in technology capability and delivery. Fasten your seat belt for the next revolution." That may be all well and good, but the sad truth is that many IS professionals are still trying to move from mainframes to client/server systems, with all that it implies.

Almost every IS organization is asking the same two questions: How can we migrate our staff from the "old" systems to the new ones? Will everyone be able to make the shift?

The answer to the last question is a resounding "no." Don't even bother trying to save and re-engineer every-

one. For a host of reasons, some rational and some irrational, many people don't want to adapt, change or reinvent themselves. The important thing is for the company and the

employee to recognize this sooner rather than later. Sinking thousands of dollars into training that fails to pay off doesn't make sense.

For companies that have attempted "people



Sobkowiak

retooling" initiatives, there is more bad news than good. Unfortunately, organizations are having a difficult time retooling legacy people. With unlimited time, resources and money, it is possible, but most companies do not have even one of these luxuries. They are generally confronted by a mandate to downsize machines and people. In a few instances when employees have no other options, they are often able to make incredible strides in developing and adopting new skills. But when employees think they have the option to continue what they have always done best, they will more often than not take the road of least resistance and opt not to change.

When a company insists that legacy people change their stripes, it must develop a set of tools to help employees cope. The most common

one is a "safety net" that holds a job in reserve for an employee who is unable to master the new skills.

Another version is a contract that ensures

an employee's continued employment for a year or two if he does not successfully make the transition. If an abrupt transition is impossible — such as when an employee must keep working on a legacy system while mastering a new one — then the pay-for-skills-mastery seems to work. Under this plan, the employee is encouraged to master the technology in stages and is given bonuses or salary increases as this is accomplished.

Under these formulas, three critical factors seem to determine success: urgency, skills and self-motivation. The company has to build and communicate the case of urgency; the company must specify and provide the skills training; and the employee must find the motivation.

If we need any more proof that re-engineering of legacy staff is not working, look at the rising number of outsourcing contracts. One major motivation for outsourcing is obsolete or potentially obsolete staff. Companies are turning to "professionals" to manage the re-engineering, abdicating to the outsourcing company the difficult people-management issues.

Sobkowiak and LeBleu are managing partners at Software People Concepts, Inc. in Monroe, Conn.

LeBleu



## Windows 95 packs subtle punch

John Gantz

**W**indows 95 may ship late, but I'll bet you still won't be ready for it when it comes. Windows 95 is going to hit lots of IS shops and departmental training and support groups like a ton of bricks.

You think that because you've already been through the DOS-to-Windows 3.x migration, you've got it knocked; how hard could it be to go from one version of Windows to the next, particularly when the new one has a better user interface, automatic network connections and the much-heralded Plug and Play capability? What's to train? Hah.

The problem is twofold. First, Microsoft will drive Windows 95 into the market faster than the market can educate itself. Second, the applications that run under Windows 95 will be far more complex than those that ran under Windows 3.1 when it debuted four years ago.

When you went through your conversion from DOS to Windows, the average PC, according to International Data Corp. survey data, ran fewer than six applications. Now it runs 12, half Windows and half DOS. How many do you think a Pentium running Windows 95 will house? Besides, what did those earlier applications actually do? For the most part, they were productivity apps supporting personal work. Now they are likely to be networked applications supporting workgroup and enter-

prise computing. Lotus' Notes, electronic mail, database access, client/server business applications — put this stuff on a new operating system, add a little Internet connectivity here and multimedia there and you have a training and support disaster in the making.

Indeed, the flip side of this looming training and support crunch will be a nice bulge in revenue for companies that get paid to train and

support information technology professionals and end users. IDC senior analyst Ellen Hersh, who follows the information technology education and training market, has pegged U.S. spending on Windows 95-related training — on the operating system and

on Windows 95-based apps — at more than \$130 million in 1995 alone. What's more, she says, the type of training needed will change with the arrival of new 32-bit applications and integrated office suites. It will be more customized and more related to the jobs performed with the software than to the features and functions of individual applications.

In short, for every dollar you spend on Win-

dows 95 — especially when it comes "free" with your computer — you'll spend another 25 cents on outside training and 25 cents on outside support. You'll spend at least five times that on internal training and support.

So if the training community and the support vendors are expecting a spike in demand for their services when Windows 95 hits the street, maybe *you* should expect a spike in demand

for *your* services. If you haven't budgeted sizable increases in training for your migration to Windows 95, then you'd better expect to compensate with over-budget outlays for end-user support.

There is an alternative, and that's the status quo. But same-

old, same-old training and support means your company will waste a lot of what you pay for in Windows 95, the new hardware it runs on and the new software you buy or develop. That's like buying a car and not buying collision insurance. Bad idea.

Gantz is a senior vice president at International Data Corp. in Framingham, Mass.



*With Windows 95, new applications and networking needs mean a disaster in the making.*



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## Vendors get support from niche service providers

By Jaikumar Vijayan

When AST Research, Inc. in Irvine, Calif., recently partnered with Memorex Telex Corp. to provide support for AST's Manhattan family of servers, AST became one of a growing number of hardware vendors to turn to specialized service providers.

This type of partnership could become the norm as vendors increasingly hook up with niche service providers that offer single-source support and keep a lid on costs, according to a study by market researcher Dataquest, Inc.

Memorex, based in Irving, Texas, is primarily a manufacturer of peripherals such as tape drives, printers, terminal controllers, workstations and display terminals. The company also provides network integration services.

Unlike general third-party service providers, niche service companies such as Memorex enter into strategic alliances with vendors based on their expertise in certain product support areas. These include desktop hardware, technical telephone support, notebook repair and server support, according to Dataquest.

### Server support

Under the alliance, Memorex will be a prime provider of AST server support. Memorex has nearly 30 years of specialized experience in the server support business, extensive experience in networking environments and numerous certified Novell, Inc. NetWare engineers.

Analysts consider Memorex a niche service provider because, unlike general service providers that offer a wide range of support capabilities across the performance spectrum, Memorex's expertise is focused on servers.

One of the most significant market benefits of this trend is that vendors can purchase niche service skills at a cost-effective price and pass the savings along to their customers. The bottom

line, according to the report, is that niche service providers today can offer better service at a better price than companies that claim to do it all.

"Strategic alliances like these help vendors broaden their portfolio of services and increase the potential market they can service," said Helen Dragoon, an analyst at International Data Corp. in Framingham, Mass.

For instance, customers of specialized service providers can get all their support requirements from a single source. Specialized service providers such as Memorex are able to offer this level of support at prices lower than general service providers' by leveraging their purchase volume, spare parts inventories and manpower.

Aside from the specialized skills that niche providers offer, geographic coverage is also able to sway vendors in their favor, Dataquest said.

For instance, the report said, Memorex has spare parts locations throughout the

country and nearly 200 certified NetWare engineers. It also guarantees a four-hour response time in most locations.

In addition to AST, which now has three specialized service partners, other major hardware vendors have started to link up with multiple providers. For instance, NEC Technologies, Inc., with three partners, and Dell Computer Corp., with two partners, also hope to leverage their relationships to bring specialized skills to the customer.

Even Microsoft Corp. has said it will outsource Windows 95 support to third-party service providers.

Users such as Dave Grubbs, microcomputer manager at Nicholson Industries, Inc. in Seattle, are cautious when evaluating the perceived customer benefits of multiple service providers.

Grubbs, who has been trying to get some support for porting Windows NT to an IBM PS/2 platform, still prefers going to vendors directly for support as long as

"it is not significantly more expensive than third-party support." That way the vendors are more accountable, he said. Also, "there is more control over training of the service representatives. They have a common database to draw from, and the competency level is generally more uniform" than can be expected from multiple third-party providers, he said.

### Communication is key

The crux of the problem is the lack of communication between hardware and software vendors, said Peter Bednar, manager of microcomputer operations at Alisco Amerimark in Raleigh, N.C.

While hardware-related problems are resolved more easily, software issues are not, Bednar said.

Although he welcomes the trend toward multiple-service partners, he said, "Hardware vendors will do better to talk with operating system vendors. It should be easier for new software to recognize the hardware without having to have different drivers for different software."



## Driving integration

**T**he continuing migration from mainframe and minicomputer environments to a more distributed computing model is driving the need for tighter integration among systems manufacturers, software vendors and vertical service providers.

An upcoming report from market research firm Summit Strategies, Inc. in Boston suggests that developing a broad market for client/server computing will require vendors and vertical providers — such as low-cost, value-added resellers (VAR), independent software vendors and systems integrators — to establish strategic alliances with partners that can complement

one another's skills.

For users, such bonding will result in lower prices and a gradual fading out of the typically expensive, customized implementations that have characterized early client/server adoption, said John Daly, an analyst at Summit.

Already, there are signs that some companies may have begun to cautiously test the waters and explore potential synergies.

For instance, from the PC space, Compaq Computer Corp. in Houston has begun to scout around for partners to help it put its midrange ambitions in place. The company has strategic alliances with database vendor Oracle

Corp. and a joint-development partnership with Texas Instruments, Inc. for communications products that Compaq will integrate with its systems.

The company also has alliances with a number of major VARs and consultancy organizations. Together they have begun offering customers "bundled solutions" aimed at specific vertical market segments.

Another company that has successfully adopted this business model is Hewlett-Packard Co.

"What companies [like these] are trying to do is form a network of interconnected and tightly aligned providers, chained together for vertical implementation," he said.

—Jaikumar Vijayan

Ralph Soucie

## Move slowly

I say it's official and irreversible: Microsoft has vanquished the field in the desktop applications market.

Microsoft's sales and earnings growth have sizzled, while Lotus' revenue from application software has declined.

Microsoft has attained IBM-style

Soucie, page 49

## Delayed modules limit usability

### Personal Oracle7 has key omissions

By Howard Millman

Oracle Corp.'s release of a stand-alone version of its enterprise-class relational database signals its intent to gain a foothold in the desktop arena while protecting its existing markets from an expected assault by Microsoft Corp.'s SQL Server.

Part of the new Workgroup/2000 product family, Personal Oracle7 consists of a constrained Oracle 7 database plus development tools and management utilities to build cli-

ent/server applications for Windows-based workgroups. Future releases will include native language versions for Apple Computer, Inc.'s PowerPC and IBM's OS/2.

In our first look at Personal Oracle7 we came away impressed with its high-end tools, its scalability and its visually rewarding and intuitive developer interface. The product leaves no doubt that Oracle knows how to build a first-rate relational database. And despite its cozy name, we found that Personal Oracle7 is more than a

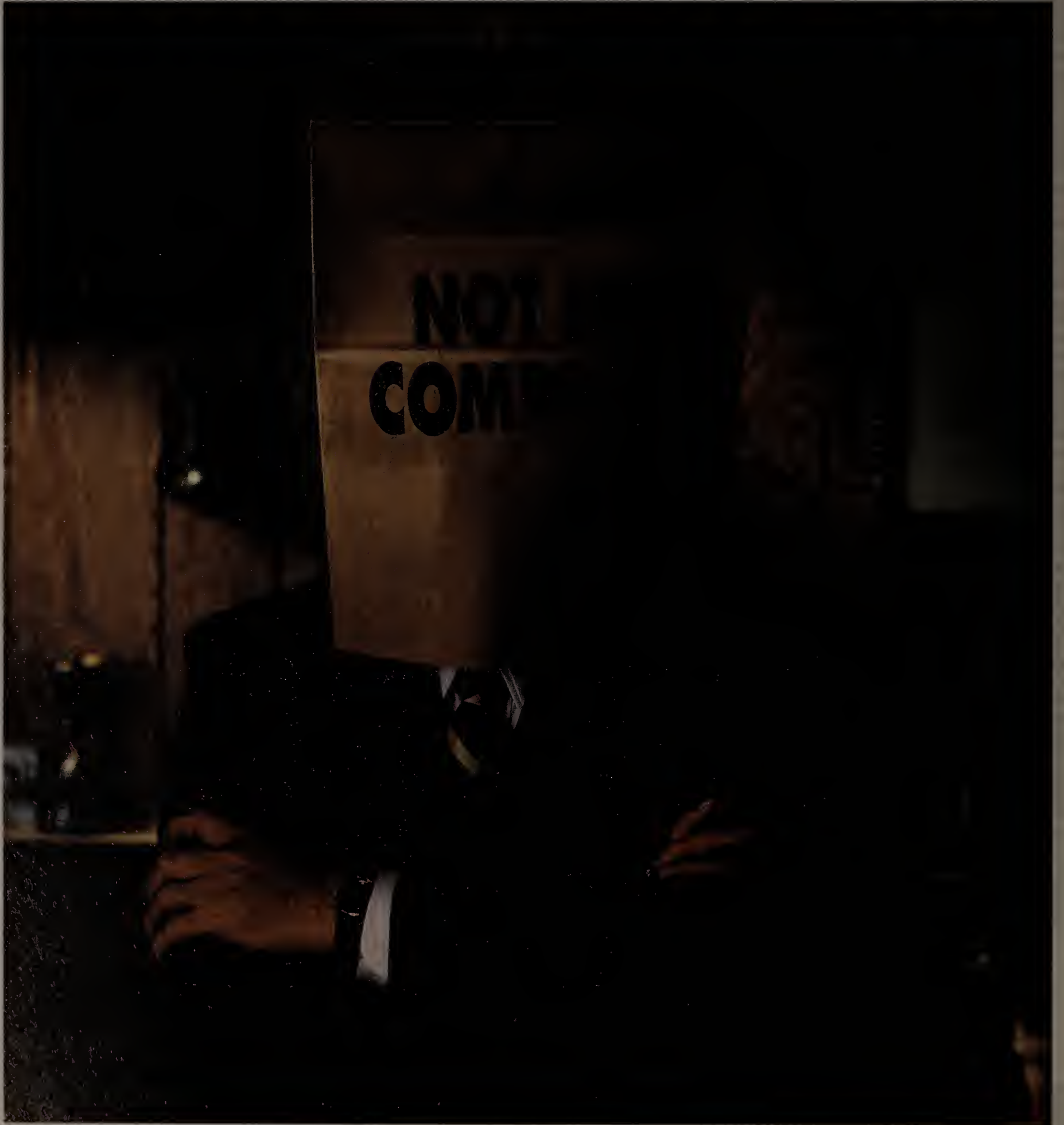
lightweight limited to cataloging recipes.

Personal Oracle7, page 47





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## Personal Oracle7

CONTINUED FROM PAGE 43

Unfortunately, perhaps because of the name and some early rumors, we had expected an "Oracle Lite," a sort of miniaturized version of the full-blown database. Not so. Instead, Oracle delivered what amounts to a teaser; the current version of the product is defined more by what it excludes than what it includes.

The four key features omitted from Personal Oracle7 are replication, database links, a complementary database designer and multiuser access. Oracle said it will add replication and database links (including SQL Net) to the next release, due out by June.

### On its own

Oracle promotes Personal Oracle7 as a stand-alone development tool, although isolated might be a better word. In its current form, the database runs on one machine with limited connectivity to the outside world and virtually no incoming connectivity. Consequently, developers can build sophisticated, powerful relational databases, but they will have to move up to Oracle's more expensive products to deploy them.

Installation went smoothly. Personal Oracle7 requires 8M bytes to 16M bytes of RAM and 30M bytes to 50M bytes of hard-disk real estate. Our test machine contained a 66-MHz 486DX2 with 16M bytes of RAM.

We followed Oracle's recommendation to set the disk cache to a read-only mode. We tested the software with Neache 2's

vanced Parameter Editing dialogbox, experienced Oracle developers can quickly change a database's initialization parameters.

Through User Manager, we created and deleted named users and changed passwords and privileges. This module establishes specified privileges within a database. A separate utility, Password Manager, controls access to the database.

Another tool, Object Manager, creates database structures. When we created new tables, we were somewhat dismayed by the delay from the time we clicked on the table option to when it appeared on screen.

Developers can migrate existing data from Versions 6.0 and 7.0 files via Personal Oracle7's Import module. Record size is limited to 64K bytes.

According to Oracle, once developers complete the database design, they can use a variety of tools for access, including Oracle's Cooperative Development Environment 2, Sybase, Inc.'s PowerBuilder or Gupta Corp.'s SQL Windows. Evidencing an "any port in a storm" strategy, Oracle even suggests accessing the database through Microsoft's

Visual Basic applications.

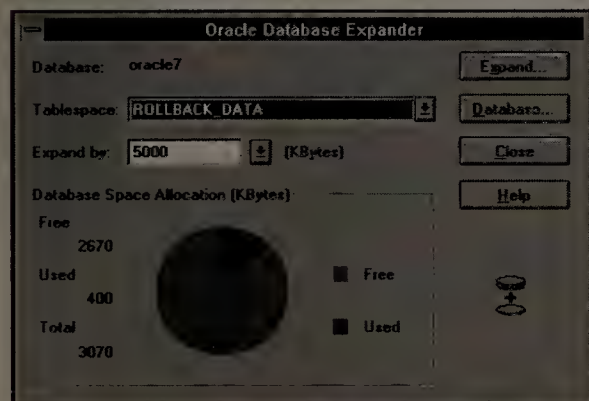
Oracle's forthcoming PowerObjects, reportedly a Visual Basic killer, will enable desktop developers to write graphical front ends to Oracle and competitive databases.

Oracle notes that Personal Oracle7 supports up to 25 accesses by a single user on the same machine. Multiuser access is available in Workgroup Server, the next higher level product in the Workgroup/2000 line.

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● Part of the new Workgroup/2000 product family, Personal Oracle7 consists of a constrained Oracle 7 database plus development tools and management utilities.

● While the product's high-end tools, scalability and intuitive developer interface are impressive, this early release omits replication, database links, a complementary database designer and multiuser access.



Personal Oracle7 includes a number of utilities to help users build client/server applications for Windows-based workgroups

write-behind cache and experienced no discernible problems. Neache 2 is part of Symantec Corp.'s Norton Utilities Version 8. We liked the performance of the tools we used.

All common database management procedures, including starting, stopping, establishing aliases and appending command line arguments, take place in the Database Manager. Through the Ad-

server and \$99 per client.

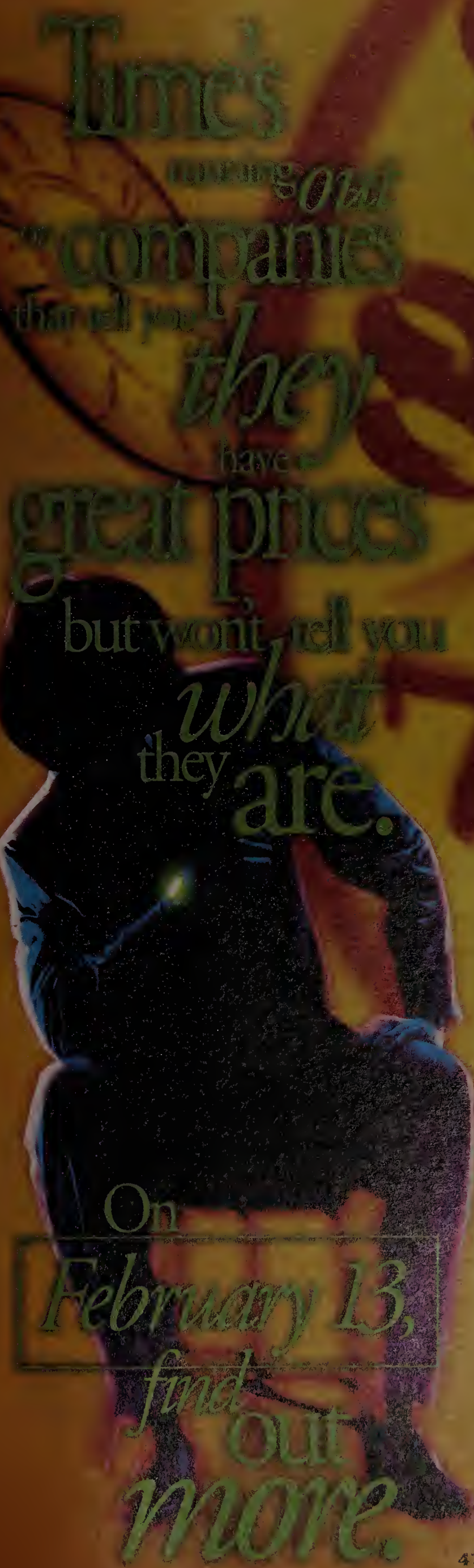
A trial version of Personal Oracle7 is available via the Internet at <http://www.oracle.com>. The total file size is 16.5M bytes; users without T-1 access can order a sample CD-ROM for \$15.

Millman is a principal at Data Systems Services in Croton, N.Y., a consultancy that specializes in information systems services.

### Cost of entry

Developers who intend to use Personal Oracle7 as a learning tool will find that its cost is low, but the learning curve is steep. The documentation and responsive, context sensitive on-line help will aid the understanding of new users, but they will need prior knowledge of database design.

Personal Oracle7 has an introductory price of \$199 until mid-April, when it will rise to \$399. Workgroup Server for Windows NT and NetWare cost \$199 per





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### Soucie

CONTINUED FROM PAGE 43

mind share: No one would ever be fired for buying the Microsoft Office suite. However, someone *could* land in hot water for deploying it the wrong way.

With good reason, Microsoft sells corporate users heavily on its productivity software. Office is not only the best-selling suite, but it also generally gets the highest ratings in independent reviews. That, combined with Microsoft's tight grip on critical industry standards, such as Windows and Object Linking and Embedding, creates a very compelling argument for Microsoft applications.

As much as you might want to see competition thrive, you probably don't have much choice but to eventually switch over to Office, and you might have to do it even sooner than you think. Lotus' SmartSuite and Novell's PerfectOffice could be headed into a death spiral where a shortage of product development funds causes the products to fall further behind the pace that Microsoft is setting. The inferiority of the products then leads to another decline in revenue, which further restricts funding, and so on into oblivion.

#### From upgrade to full version

There are already signs this is happening at Lotus. Release 5.0 of 1-2-3 for Windows began its life (appropriately, in my opinion) as a minor Release 4.1 upgrade, but it was later packaged as a full-version upgrade. Apparently many users felt the upgrade wasn't worth the money, which led to disappointing sales in the third quarter.

I'm an admirer of the Office suite, but I must sound a note of serious caution to those who are contemplating buying

hundreds of Office licenses. Don't underestimate the soft costs of converting documents, particularly complex 1-2-3 files.

Many companies have invested considerable staff time in creating 1-2-3 macros to automate tasks such as corporate budgeting and financial consolidations. Converting those macros over to Excel isn't a walk in the park, regardless of what the Microsoft salesperson might say. Though Excel includes a utility that translates 1-2-3 macros into Excel macros, the translation process is imperfect. If your 1-2-3 macro is complex, there's virtually no chance it will convert flawlessly to Excel.

#### Take your time

My advice is to move slowly. Before you force hundreds of users to convert from 1-2-3 to Excel, put a few of your most knowledgeable users to work on converting your important macros. Then use their experience to estimate the resources you'll need to convert all your macros and train end users to use them.

Underestimating these human costs can torpedo your transition. I advise clients to convert to Microsoft productivity applications, but I also urge them to first make sure they have the proper human and training resources in place.

You should also take an inventory of corporate intellectual assets that reside in spreadsheet files. In many companies, designated individuals have custody of these important files, and the most recent versions often reside only on individuals' hard disks. While taking inventory of the files, note any macros that are not properly documented. This is a key protective measure whether or not you are converting to another spreadsheet program.

Soucie is a writer and Excel consultant in Winterport, Maine.

### Briefs

#### Osborne bundles Warp

Australian PC clone maker Osborne Computers has signed a deal with IBM to bundle OS/2 Warp and PC-DOS with all of its systems, replacing Microsoft Corp.'s Windows for Workgroups 3.11. Osborne said it shipped the most PCs in the Australian market in 1994.

#### Zenith Data, Symantec join

Zenith Data Systems in Buffalo, N.Y., and Symantec Corp. in Cupertino, Calif., recently signed a licensing agreement under which Zenith Data will bundle Symantec's PC tools on certain models of desktops and notebooks. The desktop management software will be preloaded on Zenith Data desktops and notebooks with drives larger than 250M bytes. The bundled suite has features such as desktop organization and file management, data protection and configuration tuning.

#### IBM OS/2 Warp success

IBM officials said they have shipped 1 million copies of OS/2 Warp since the product became available in early November. They also announced the company has sold more than 13,000 licenses of OS/2 LAN Server 4.0 in the first three months of that product's commercial availability.

#### Inland Revenue hires CSC

Inland Revenue, the United Kingdom's equivalent to the Internal Revenue Service, has reaffirmed there is room for more than one outsourcer in an information systems shop. The 69,000-employee tax agency has hired El Segundo, Calif.-based Computer Sciences Corp. (CSC) to a three-year PC procurement and services contract, valued at an estimated \$25 million.

CSC beat Inland's data center outsourcer, Electronic Data Systems Corp., which is a year into a 10-year, \$1.5 billion contract with Inland. The Inland/CSC contract includes options for two one-year extensions.

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Gateway 2000, Inc. has announced the ColorBook<sup>2</sup> notebook.

According to the North Sioux City, S.D., firm, the 5.7-pound ColorBook<sup>2</sup> has a 10.3-in. passive-matrix color screen, 16-bit stereo sound and either a 25/50-MHz Intel Corp. i486DX2 or a 33/100-MHz DX4 processor.

The notebook comes with up to a 720M-byte hard drive, 24M bytes of memory, one or two PCMCIA slots and serial, parallel and VGA ports.

Prices range from \$3,499 to \$3,999.

► *Gateway 2000*  
(605) 232-2000

Hewlett-Packard Co. has announced the HP Freedom Series, high-end graphics accelerators for its HP 9000 Series 700 workstations.

According to the Palo Alto, Calif., company, the Freedom Series accelerators, based on Evans & Sutherland Computer Corp.'s three-dimensional graphics technology, support industry-standard OpenGL graphics libraries.

The accelerators feature full X Window System support, hardware-accelerated texture mapping, advanced lighting and shading algorithms and stencil planes. They are available as add-ons to existing systems or as integrated features on HP Model 715 workstations.

Prices range from \$65,000 to \$135,000.

► *Hewlett-Packard*  
(415) 857-1501

Elo TouchSystems, Inc. has announced the AccuTouch HL Series of resistive touch screens for liquid crystal and other flat-screen displays.

According to the Fremont, Calif., company, the AccuTouch HL Series features high light transmission and brightness.

The product has a layer of advanced light-transmission plastic laminated to one layer of optics-grade glass to preserve the display's image quality and purity. The screens are available with serial, AT bus, Micro Channel and chip-based controller options.

The AccuTouch HL costs \$165.

► *Elo TouchSystems*  
(510) 651-2340

Ultima International Corp. has announced MediaHouse, a Windows-based multimedia manager.

According to the Fremont, Calif., company, MediaHouse provides search, storage and retrieval for image, audio, video, CD-ROM and document files.

Users can organize media files in electronic folders and larger cabinets that hold multiple folders. Features includes six different file search criteria and a multimedia slide show for presentations.

MediaHouse costs \$99.

► *Ultima*  
(510) 659-1580

Claritas, Inc. has announced Catalyst GIS+, data retrieval and desktop mapping software for Windows.

According to the Arlington, Va., firm,

Catalyst GIS+ is targeted at marketing departments. It retrieves correct data for geographically and geometrically defined trade areas.

Database offerings include annually updated demographics, lifestyle segmentation, business databases and consumer product demand.

Prices start at \$20,000 for the U.S. version of the system, which includes data, full cartography and software.

► *Claritas*  
(703) 512-2700

NEC Technologies, Inc. has announced the MultiSync XV15 monitor.

According to the Boxboro, Mass., company, MultiSync XV15 provides a flat-screen CRT, .28mm dot pitch, resolution of up to 1,280 by 1,024 pixels and a 60-Hz refresh rate.

The monitor includes Plug and Play technology and comes with NEC's DPI-On-the-Fly software for the Macintosh and TaxCut software for Macintoshes and PCs.

MultiSync XV15 costs \$455.

► *NEC Technologies*  
(508) 264-8000

Campbell Software, Inc. has announced Campbell Staffworks 3.0, labor scheduling software for the retail industry.

According to the Evanston, Ill., firm, Campbell Staffworks 3.0 identifies the best possible schedule based on payroll requirements, customer traffic, employee skills, union rules and preferences.

Features include support for up to 10,000 in-store departments and job classes, minor labor law compliance, user-definable pay classes and the transfer of employee information into human resources documents.

Prices start at \$3,000 for a site license.

► *Campbell Software*  
(708) 328-3200

Memory International has introduced the MI PC Card Fax/Modem and the MI PC Card Ethernet Fax/Modem, both PCMCIA cards.

According to the Irvine, Calif., company, the MI PC Card Fax/Modem transmits and receives data and faxes in either 14.4K bit/sec. or 28.8K bit/sec. versions.

The MI PC Card Ethernet Fax/Modem connects notebook PCs to an Ethernet network and provides a choice of 14.4K bit/sec. or 28.8K bit/sec. capabilities.

Prices range from \$199 to \$495 for the MI PC Card Fax/Modem and from \$695 to \$945 for the MI PC Card Ethernet Fax/Modem.

► *Memory International*  
(714) 453-8008

### Product short

Bramblebush Software has announced SplitVu, a word processing add-on for Novell, Inc.'s WordPerfect 6.0 and 6.1 for Windows. The product creates two windowpanes on the screen and lets users edit two different parts of the same document simultaneously. Cost: \$34. Bramblebush Software, New Canaan, Conn. (203) 966-0198.

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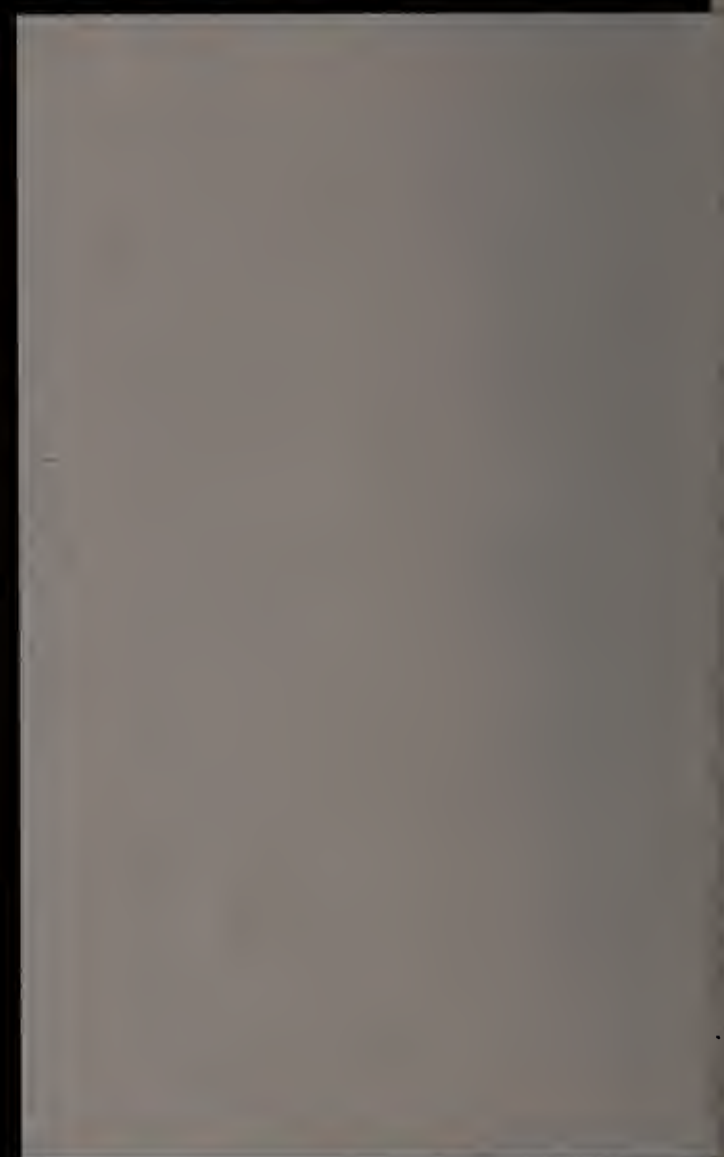
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## Videoconferencing gains some ground

By Mary Brandel

"Are we there yet?" That is the status of videoconferencing at most companies today, mainly because of a lack of standards and high costs.

And even though the answer is mostly "not yet," announcements made at ComNet '95 recently have taken the industry at least a few miles farther down the road.

Lower pricing was the name of the game for PictureTel Corp. in Danvers, Mass. The company is well known for its premium-quality and premium-price PCS 100 system. For \$5,000, users get Integrated Services Digital Network (ISDN), switched-56 or V.35 communications, three video I/O ports, a sophisticated speaker phone and a multifocus camera.

But with its new \$2,500 PCS 50, "we've tried to select features that 80% of the market will use," said Tony Paradiso, director of marketing for personal systems at PictureTel.

As a result, the PCS 50 works only with 56K to 128K bit/sec. ISDN and has a single video I/O port, a fixed-focus lens and a headset rather

than a speaker phone. The system is compatible with any 386-based PC, Paradiso said.

Analysts said PictureTel's PCS 50 is now competitive with AT&T Corp.'s desktop system and within \$1,500 of Intel Corp.'s ProShare.

### Almost there

At those prices, "a lot of people might say, 'I'm going to use it right now, and if something better comes out, I can still depreciate the investment in three years,'" said David Boomstein, senior vice president of desktop programs at Applied Business Telecom, Inc. in Huntsville, Ala.

However, "we think it needs to get down below \$1,000 per seat to see rapid growth" in desktop videoconferencing, said Steve Richardson, vice president of product marketing at Compression Labs, Inc. in San Jose, Calif.

Compression Labs resells PictureTel and V-Tel Corp. desktop systems. But it focuses on group conferencing systems, which cost more than \$50,000 on the high end and between \$20,000 and \$50,000 at the low end.

However, Compression Labs' focus at ComNet was not on price but on interna-

tional standards in its low-end group conferencing line, called Eclipse.

Because the earlier version of Eclipse used proprietary audio and video compression algorithms, "it was acceptable but not desirable" for international communications, said Tom Szczerba, communications network manager at Modern Engineering, an automotive engineering service company in Warren, Mich. "We

knew we would have to do something about it to exploit business overseas," he added.

With the new 8200 and 8300 systems, "we can go in with ISDN circuitry and do dial-ups to Europe or put in a dedicated circuit to South America or the Far East and exchange information, or show CAD displays on-screen," he said.

### Breaking out

Interoperability was also a concern for InSoft, Inc. in Mechanicsburg, Pa., which has made a name for itself in Unix videoconferencing with its Communique suite of products.

Now, with the \$1,995 Communique 4.0, InSoft is one of the few vendors that provides interoperability be-

tween Unix- and Windows-based PCs. "Previously, [InSoft] was only on the workstation, so it was cost-prohibitive to a lot of corporations trying to use [videoconferencing] in a standard business environment," said Christine Heckart, director of broadband consulting at Telechoice, Inc. in Verona, N.J.

"We wouldn't want to tell a radiologist in rural Pennsylvania that he had to buy a Sun workstation with this-and-this software to be able to videoconference with us," agreed Dr. David Channin, a resident in the radiology department at the Hershey Medical Center at the Pennsylvania State College of Medicine in Hershey.

The center is not using videoconferencing now, but it did use Communique in a "telementoring" demonstration, where it discussed X-ray images with specialists 2,000 miles away.

InSoft also announced it has opened its Digital Video Everywhere (DVE) application development to third-party developers. OpenDVE is intended to encourage developers to write collaborative and conferencing functionality directly into their software solutions. Prices for developer licenses start at \$12,995.

## COMNET '95

### Banner year

In 1994, 21,000 desktop videoconferencing units were sold, according to Applied Business Telecom. A total of 50,000 units has been sold in the history of videoconferencing.

## Aerospace giant seeks enterprise uniformity

By Jean S. Bozman

As Martin Marietta Corp. grows through merger and acquisition, its engineers are taking the initiative to establish a standardized user interface and computer-aided design (CAD) software suite that can run on all of the company's Unix systems. The standardization effort is expected to simplify work for engineers who design aircraft, missile systems and electric circuits.

To boost productivity and reduce training time in a mixed-vendor computing environment, users formed the Engineering Process Improvement (EPI) task force in 1990 and hired an outside consultant to study the best practices in the aerospace industry. Last year, EPI users from 15 business units decided on a standard set of CAD applications and set out to buy hardware systems to run them.

In a quest to save money, Martin Marietta also decided last fall to sign a volume purchase agreement for Hewlett-Packard Co. Unix workstations and Unix servers. Martin Marietta chose the HP units for their performance, but the move posed a considerable connectivity challenge for many of the company's networks that were built around Sun Microsystems, Inc. technology.

Martin Marietta plans to install up to 1,000 HP workstations and servers in the next two years, ordering as many as 100 units a month. Some will be used in systems shipped to Martin Marietta systems integration customers at government agencies.

### All together now

"We're creating Unix boxes as a commodity," said Steve Butt, an engineering manager in Camden, N.J., who chaired the EPI evaluation committee. Martin Marietta had bought 6,500 Sun Unix workstations on a previous supplier contract from 1990 to 1994, Butt said. In the 1994 bidding process, all vendors "had to demonstrate interoperability with what was a pretty homogeneous Sun Unix network," he added.

But users fully expect the Sun and HP

systems to interoperate using HP's support for Sun's ONC+/NIS networking software and the industry-standard Network File System to share data files. The Open Software Foundation's Common Desktop Environment is expected to unify graphical user interfaces when it ships on Sun and HP machines later this year.

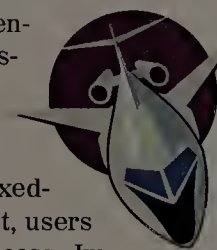
Packaged software is key to the standardization effort. "The attempt is to use off-the-shelf CAD tools that suppliers or developers of those applications support," said Tom Smith, a senior systems engineer in Martin Marietta's information systems group who works at the Ocean Radar and Sensor Systems unit in Syracuse, N.Y. By using both Sun and HP — the world's Top 2 workstation suppliers — engineers can use a wide variety of third-party packages that play on both platforms, he said.

The HP contract is subject to review next year, and Martin Marietta has an option for a third year. Martin Marietta's pending merger with \$13 billion Lockheed Corp. in Calabasas, Calif., which has a mixed-vendor network, means all plans are subject to review, users said. And at least one outside expert, Graham Kemp, president of G2 Research, Inc. in Mountain View, Calif., said the Lockheed merger, due this spring, will prompt another look at compatibility issues.

Since the U.S. Department of Defense began shrinking budgets for military projects in the early 1990s, aerospace contractors have been forced into a consolidation mode, Kemp said. Once two companies merge, the process of business unit triage begins. "You have to go business unit by business unit," he said. "Then computer support becomes a function of what's left."

It will be hard to standardize on just one systems supplier, he said, because government work specifies computer systems and requires long-term auditing of current systems. "When you dig down underneath, you're going to find that a lot of these projects are hardware-specific," he said.

Martin Marietta, page 57



## ON SITE

### Martin Marietta Corp.

Bethesda, Md.

**Challenge:** To forge a single set of engineering applications and software tools across a sprawling aerospace enterprise.

**Strategy:** Sign up a single supplier for new Unix hardware systems, maintain support for installed systems, buy packaged software when possible and build applications to a set of internal standards.

**Goal:** A heterogeneous network of Unix systems, common network links and common CAD packages.



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# Action integrates workflow, document management

By Suruchi Mohan

Action Technologies, Inc.'s announcement last week of Action Workflow DocRoute, a product that integrates document management with workflow, constitutes a coming to terms with the reality of workflow.

For many years, "low-end" workflow

companies such as Action in Alameda, Calif., and Sunnyvale, Calif.-based Reach Software Corp. have tried to sell workflow products.

"But they've all discovered that it is hard to sell a workflow product," said Ronnie Marshak, editor-in-chief of the newsletter "Workgroup Computing Report," published by Patricia Seybold

Group in Boston. "People aren't ready to spend money on something that doesn't solve a problem."

In other words, workflow for workflow's sake is not cutting it; companies are looking for cost justification. At the high end, cost justification comes from working with imaging applications. At the low end, it comes from integrating

workflow with other technologies, Marshak said.

DocRoute is preconfigured to support document management applications from Saros Corp. in Bellevue, Wash., Novell, Inc. in Provo, Utah, and PC Docs in Tallahassee, Fla. It allows users of document management appli-

cations to perform basic workflow functions such as intelligent routing, review and approval automation, notification and workflow management.

For instance, DocRoute works with Saros' Document Manager interface in a Saros Mezzanine-supported environment. Mezzanine is the document management program; Document Manager provides routine tasks such as printing, faxing and electronic mail. DocRoute is implemented in a drop zone within the Document Manager interface; a document is dragged and dropped on the icon, triggering a workflow process. The advantage to users, in addition to workflow functions, is that they are able to work in a familiar environment.

## Minor problems

One of the product's weaknesses, however, is that DocRoute and Mezzanine work off different servers, according to Jeff Peterman, president of Green Pasture Software, Inc., a software developer in Corvallis, Ore. Both products are based on SQL Server but do not read each other's database.

Also, using DocRoute in the Saros environment can be cumbersome because users have to login to DocRoute and Mezzanine separately, Peterson said.

But Marshak said overall, DocRoute is a significant step forward because it reflects workflow vendors' realization that workflow as a single entity does not do as well as when integrated with another product.

DocRoute, priced at \$195 per user and \$2,495 per server, is available now.

## At the high end

At Lotus Development Corp.'s recent Lotusphere developers conference in Orlando, Fla., Documentum, Inc. in Pleasanton, Calif., announced the Documentum Server for Lotus Notes, which integrates the object management and group collaboration capabilities of Notes with document management.



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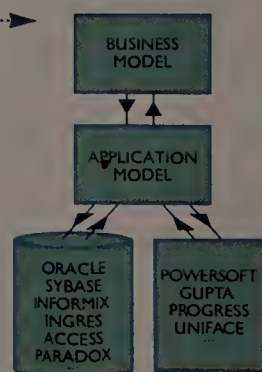
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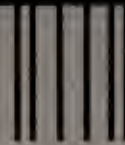
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# Users see promise in Intel's LANDesk

By Steve Moore

Intel Corp.'s recent introduction of an applications suite designed to integrate client/server LAN management functions has received praise from users and analysts. Those functions include software distribution and metering, hardware and software inventories, performance monitoring and remote control.

One beta user of LANDesk Management Suite (LMS) 2.0 is Steven Shaffer, network manager at Management Consulting & Research, Inc. in Falls Church, Va. "If I have a problem with a PC in my home office and program a tactical response to it, that programmed response is my cavalry when the problem happens in a remote office," he said.

"The ability [of LMS] to back out changes over several generations will save users a lot of time and effort," said Bob Janusaitis, a LAN network management analyst at Business Systems Group in Houston. If a newly installed version of an application fails to work properly, any prior configuration can be restored automatically, he explained.

Janusaitis said that because LMS now supports only DOS and Windows platforms, "It will appeal to a company that has a large number of Intel-based machines, but a company with an equal number of Unix and Intel machines may look for a product that can support both." Intel plans to add support for other operating systems, including Microsoft

Corp.'s Windows NT and Windows 95, OS/2, Unix and Macintosh.

LMS is one of the first LAN management products to use the Desktop Management Interface (DMI), which specifies a standard way for PCs and servers to provide information about themselves to management applications. "The interface will be a great benefit in the future," Shaffer said. "But I haven't seen a lot of DMI activity from other vendors, so the jury is still out for me on that."

## Martin Marietta

CONTINUED FROM PAGE 53

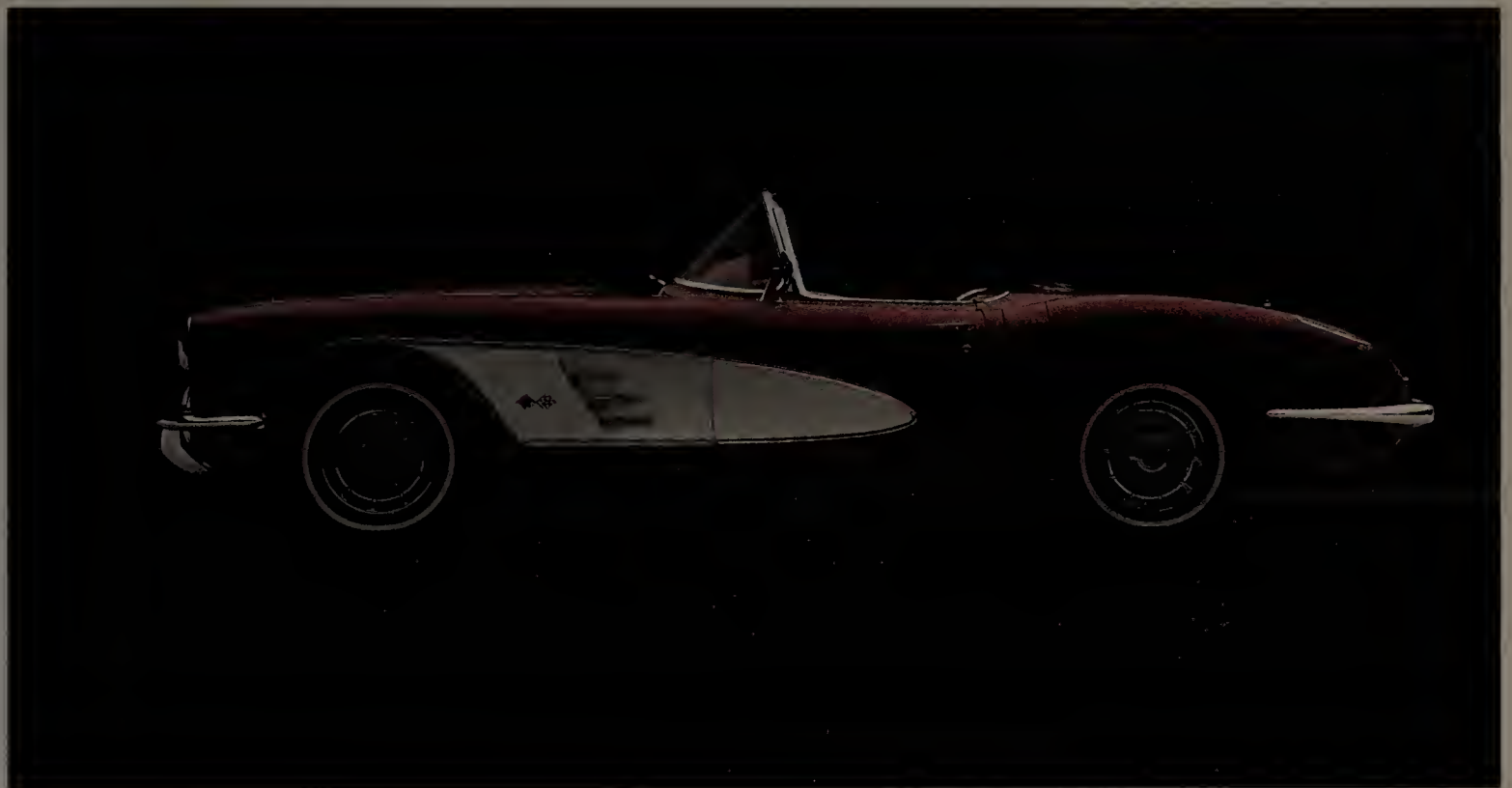
At Martin Marietta, basic compatibility among the various Unix systems has already been achieved, users said. "There are a lot of lessons learned, but we're operating between the HPs and Suns," said Randy Crowe, a systems analyst at Martin Marietta's Information Systems Co. in Orlando, Fla. "You can log on [with] both of them and get [network] resources and [CAD] tools." Users can read files stored on either system, but some projects will require systems from other vendors, including IBM, users said.

Workgroups formerly in General Electric Co.'s aerospace unit, which Martin Marietta acquired in April 1993, were Sun-centric. That prompted users to consider porting some homegrown Sun applications from older SunOS systems to HP/UX.

During the EPI evaluation, some users argued that moving from SunOS to Sun's Solaris 2.x would also have required a migration effort and application modifications. "Our perception of porting is that it's probably as big a deal to move from SunOS to Solaris as it is to port from SunOS to HP," Smith said. "But if you're buying 100 [HP] workstations, you might be able to save so much [on hardware] that you could pay for the port."

Business units that had mixed-vendor networks in place — particularly their unified naming schemes for files and user identification — were used as models for interoperability. "We required all of that to interoperate so we could put in any iron we needed to use," Crowe said.

Business benefits began with the decision to standardize the company's CAD packages, said Ed Mihalik, who represented Martin Marietta's internal IS group in the EPI effort. "It makes it easier for users to share work between different components of the company," said Mihalik, whose unit is based in Valley Forge, Pa. "Once you have people trained on a set of standard tools, they can move to different businesses and become productive more quickly."



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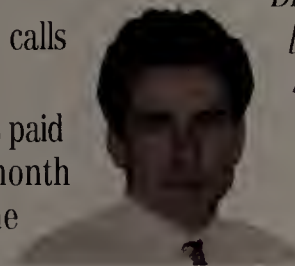
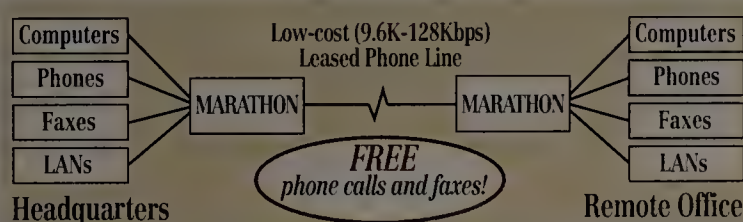
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## New Products

**Lightwave Communications, Inc.** has announced **ServerSwitch**, a workstation controller that connects a single Sun Microsystems, Inc. monitor to up to 25 different Sun workstation CPUs.

According to the Milford, Conn., company, **ServerSwitch** users can access and control the remote CPUs from a central

location for administrators who want to monitor individual servers or workstations.

The product can be cascaded to create a network of servers attached to a single monitor.

**ServerSwitch** costs \$1,950.

► **Lightwave Communications**  
(203) 878-9838

**PictureTel Corp.** has announced **PictureTel Live PCS 50**, a desktop video-

conferencing and application-sharing system that runs across Integrated Services Digital Network telephone lines.

According to the Danvers, Mass., company, **PictureTel Live PCS 50** provides a fixed-focus camera, simultaneous display of local and remote views, and user control of video window size.

A live Share feature lets users share spreadsheets or other documents, even if only one user's PC has the application. A shared whiteboard, file transfer and

common clipboard capabilities are included.

Prices start at \$2,495.

► **PictureTel**  
(508) 762-5000

**Hummingbird Communications Ltd.** has announced **Exceed 4** for Windows 4.1, PCX Window System server software that lets Windows users access Unix, VMS, Digital Equipment Corp.'s Ultrix and the Open Software Foundation's OSF/1 computers and applications.

According to the Markham, Ontario, firm, **Exceed 4** for Windows 4.1 features a performance-optimized X server, improved security and enhanced installation and X server configuration utilities.

An Xsession program starter provides concurrent setup of Windows, Unix, X Windows and character-based applications. The product supports the Unix print requester, providing transparent printing of Windows applications on Unix printers.

**Exceed 4** for Windows 4.1 costs \$545.

► **Hummingbird Communications**  
(905) 470-1203

**Synergy Solutions, Inc.** has announced **Modem Assist Plus 4.0**, nondedicated line modem sharing software.

According to the Mesa, Ariz., company, **Modem Assist Plus 4.0** includes Dynamic Link Libraries for modem clients, a Microsoft Corp. Component Object Model (COM) port redirector, inbound call support and Windows Serial Line Internet Protocol and Point-to-Point Protocol support.

A background queuing feature lets users queue for an outbound line if none is available and continue work on current applications until a line is free and their communications software starts.

**Modem Assist Plus 4.0** supports eight COM ports and costs \$899.

► **Synergy Solutions**  
(602) 545-9797

**Workflow Technologies, Inc.** has announced **Innovation Project Manager**, project management software.

According to the Austin, Texas, company, **Innovation Project Manager** defines, administers and reports project status.

Features include ad hoc negotiation for work assignments, automatic creation and adjustment of project schedules from templates and workflow-enabled work items.

**Innovation Project Manager** runs on all Notes-supported platforms and costs \$4,995.

► **Workflow Technologies**  
(512) 331-8850

## Product short

**Clarify, Inc.** has introduced the **Clear-Extensions Kit for Notes**, a product that integrates Clarify's Customer Service Management System with Notes. The kit includes a configurable Clarify integration template, a Notes application database and source code. Cost: \$10,000 per server. Clarify, San Jose, Calif. (408) 428-2000.

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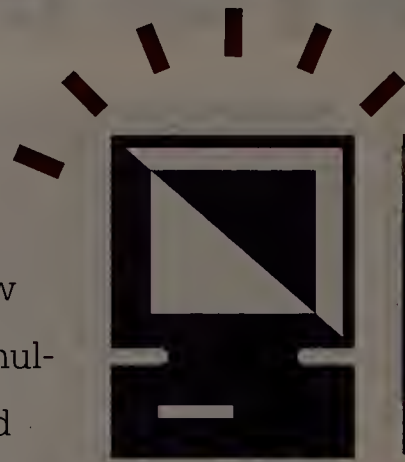
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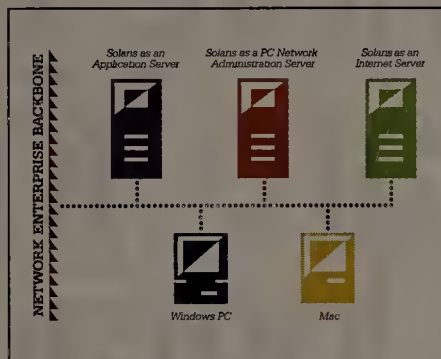




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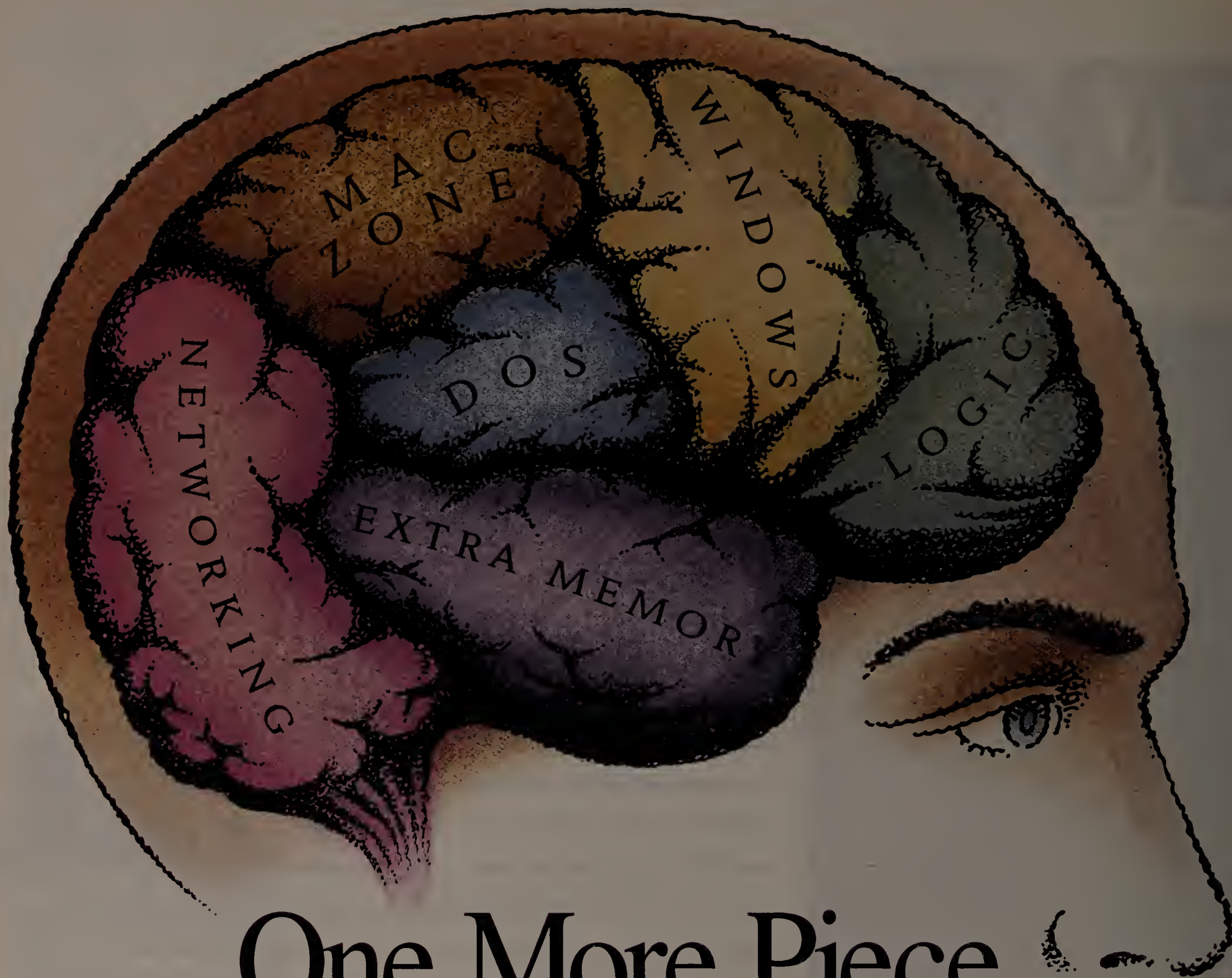
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## Banyan users cling to Vines system

Loyalists prefer it to NetWare 4.1, NT Server 3.5

By Laura DiDio

With Novell, Inc. still commanding an impressive 65% to 70% share of the network operating system market, most of the industry views networking with NetWare-centric eyes.

Most, that is, but a select coterie of high-end Fortune 1,000 accounts that remain staunch Banyan Systems, Inc. Vines loyalists.

While acknowledging the new and improved NetWare Directory Services (NDS) in Novell's NetWare 4.1 and the superior merits of Microsoft's Corp.'s Windows NT Server 3.5 as an applications server, the Banyan installed base remains as fiercely committed to Vines as any rock 'n' roll groupie in pursuit of an idol.

Bob Sakakeeny, an analyst at Aberdeen Group in Boston, said Vines delivers "a big payoff to corporate customers in terms of lower cost of ownership, ease of use and network maintenance." Although Banyan actually has an overall 8% market share among all classes of users, he

said it commands nearly 50% market share among large enterprise users who have more than 40 or 50 users attached to a single file server.

In fact, there is only one complaint har-

bored by Vines network administrators: Many of them have to defend their use of Vines to end users who wonder why the corporation is not deploying NetWare or NT Server 3.5.

"I'm constantly being challenged by users — and even my own wife, who works for a CD-ROM publisher — about why I'm using Vines instead of NetWare or Windows NT Server," said Richard M. Kesner, chief information officer at Babson College in Wellesley, Mass.

He has an answer, though: "Sure, the other [network operating systems] vendors are catching up, but why wait two years for Super NOS or Cairo when Vines has it all right now?"

Ray Giandrea Jr., senior network specialist at Hanaford Brothers, the parent company of Shop and Save supermarkets in Scarborough, Maine, said he has often felt like a "Vines apologist" amongst his users. "It's difficult to swim against the Novell NetWare tide," he said.

When the subject turns to add-on applications, Barry Reesor, network administrator at Falconbridge Ltd., a Toronto-based mining company, said he is often on the defensive because Vines does not have nearly as many add-on applications as NetWare. "We search longer and harder for

Banyan [independent software vendors] and applications, although I think it's worth it," Reesor said.

After using NetWare, Norman Gottschalk, manager of MIS at General American Credits, Inc. in Pittsburgh, conceded that it is "the best and fastest" network operating system for LANs. But when it comes to wide-area networks, not even NetWare 4.1 can hold a candle to Vines.

"Vines saves [General American Credits] \$50,000 to \$75,000 a year in maintenance, manpower and reduced hardware costs," Gottschalk said. "It gives me complete control of all my branch offices on the East Coast without requiring any third-party communications products to monitor remote workstations and devices."

### Rural users see benefits

The centralized directory services of Vines' StreetTalk hold special appeal for users in rural or remote areas.

Customers such as Giandrea and Martin Cary, director of information and technology at the North Slope School Borough in Barrow, Alaska, said for them, Vines was not just the best choice — it was the only choice.

Hanaford Brothers' network has 2,500 users in more than 100 locations throughout New England and the Carolinas. For five years, Vines' StreetTalk has let users log in to get their electronic mail from any location on the network, Giandrea said.

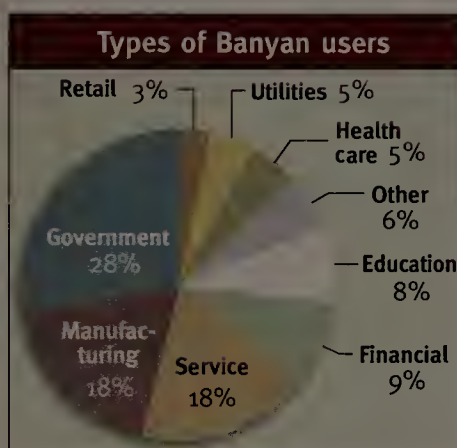
NetWare 4.x's NDS is a recent phenomenon by comparison, Giandrea said. "We priced it out. The admin-

istrative costs with a Vines network are a fraction of what they would be if we were running NetWare. There's no way we could support our existing network with a staff of just two full-time network administrators, as we do with Vines."

The North Slope School Borough relies on its Vines WAN network to link 10 schools and three administrative sites, which span more than 88,000 square miles of frozen tundra. Even if the district could afford a network manager at each location, there is a dearth of skilled management personnel in the far reaches of the state, Cary noted.

"Without Vines, even simple tasks like adding users would be a real headache," Cary said.

Users said they experienced almost no network downtime or major problems attributable to Vines.



Source: Dataquest, Inc., San Jose, Calif.

## Encyclopaedia Britannica shelves its books on the 'net

By Ellis Booker

Eighteen months ago, Chicago-based Encyclopaedia Britannica North America had a big problem.

Encouraged by one of its university customers to create an on-line, campuswide version of its print editions, the reference work company quickly concluded that the cost of mounting the data for one customer "would cost 10 times what we could charge in our business model," said President Joseph Esposito.

How could Encyclopaedia Britannica distribute an on-line reference so each new campus subscriber could be added at minimal cost? After only six weeks of study, Encyclopaedia Britannica hit on the notion of using the Internet, Esposito said.

In September, Encyclopaedia Britannica North America launched Britannica

Online on the World-Wide Web, signing up the likes of Princeton University, Stanford University, MIT and the University of Illinois. Along with the reference guide — which contains 15% of the 23,000 graphics found in the paper edition — the on-line service includes the 1994 Britannica Book of the Year almanac and Merriam-Webster's Collegiate Dictionary, 10th Edition.

### Users sign on

"We think it's an absolutely fabulous product," said Nancy John, assistant university librarian and manager of library systems at the University of Illinois in Chicago, a beta site since last April. The university plans to become a paying customer later this month.

Although the school's license permits unlimited access by all of its 28,000 students and 6,000 faculty and staff members, "there are only about 2,000 users



with the TCP/IP connections needed to get the text and graphics," John said. Another several hundred users can access Britannica Online via Lynx, a character-only hypertext browser for Unix servers. The searchable Britannica Online contains more than 700,000 hypertext links, with more added daily.

The schools pay a site license that ranges from \$5,000 to \$35,000. Esposito, who considered a per-transaction payment model, said the site-license approach makes sense.

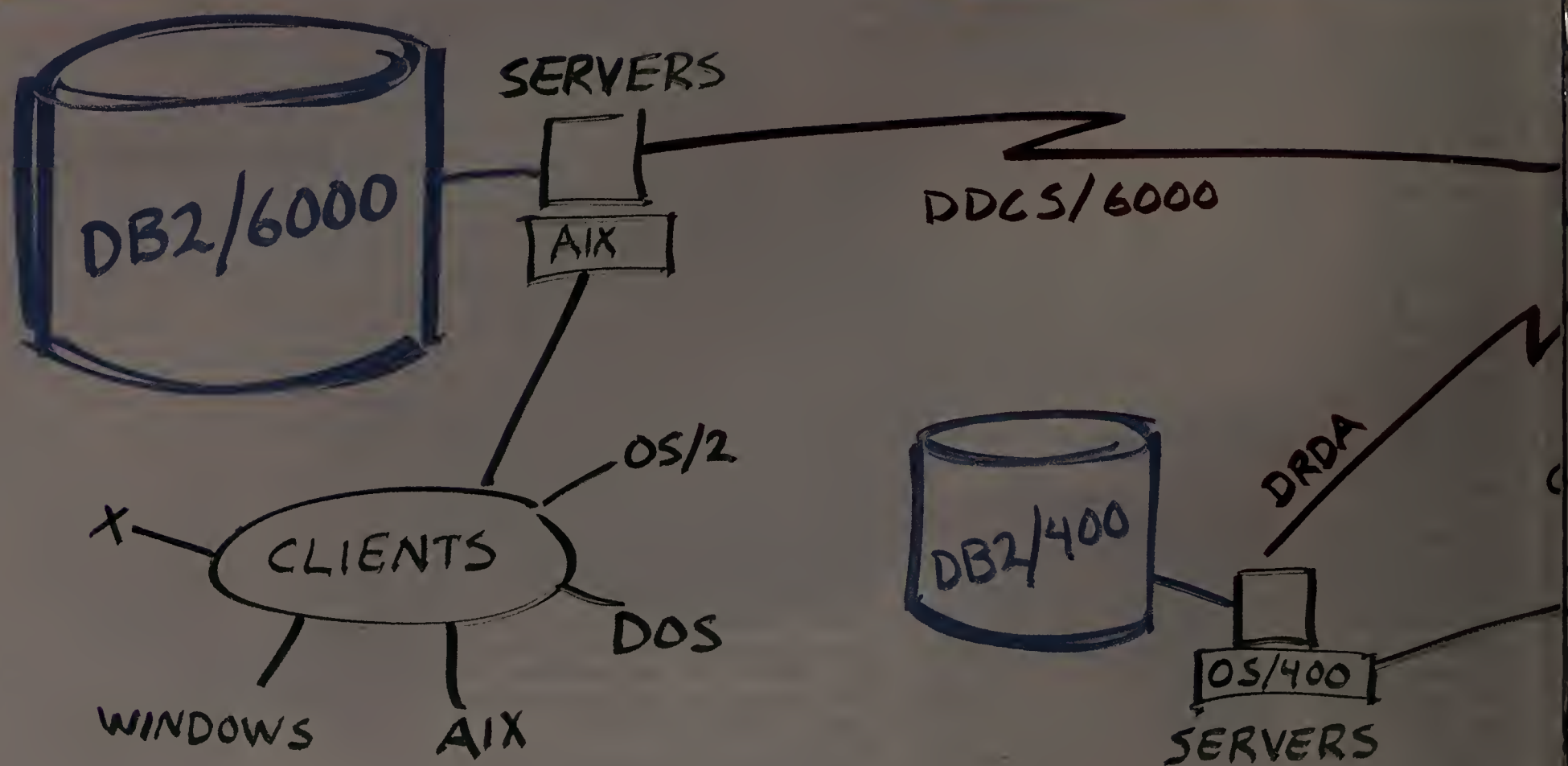
Encyclopaedia Britannica is considering products aimed at individuals and corporate customers. But as yet, it does not have a deployment schedule for these products.

"The whole publishing industry is grappling with what business model to use" for delivering content over the Internet, said Encyclopaedia Britannica, page 70



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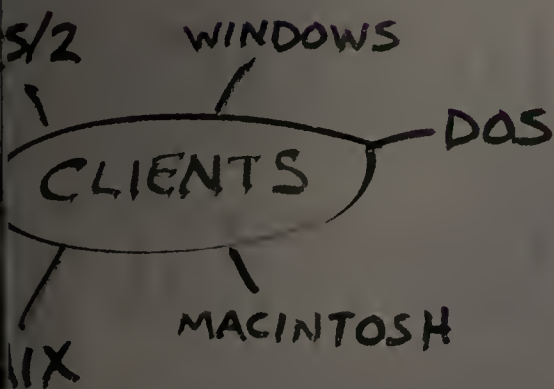
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online backup.

[illegible]



# ATM steals the show at ComNet '95

Asynchronous Transfer Mode (ATM) has dominated the spotlight at recent networking trade shows, and last month's ComNet '95 exposition in Washington was no exception.

Telecommunications provider **Northern Telecom** and local-area ATM player **Fore Systems** announced a partnership aimed at delivering end-to-end ATM-based networks.

Northern Telecom will integrate Fore's ForeThought ATM management software into its Magellan PassPort and Concorde wide-area switches. ForeThought features support for LAN and WAN ATM access functions, such as switched virtual circuits, IP multicasting and LAN emulation.

"This agreement could have big implications because the need for end-to-end ATM connectivity is starting to rear its ugly head," said Charles Robbins, a vice president at Aberdeen Group in Boston.

Speaking of LAN emulation, Santa Clara, Calif.-based **Bay Networks** demonstrated standards-based signaling and LAN emulation using its LattisCell and EtherCell switches and network interface cards from Interphase Corp. and Efficient Networks.

Meanwhile, **StrataCom** in San Jose, Calif., announced support for an ATM service called Available Bit Rate (ABR) that promises to dramatically lower the cost and increase the performance of wide-area data communications. ABR permits users to dynamically access available bandwidth that other ATM services are not using. StrataCom's wide-area BPX switch will support the service via a new ATM interface board.

At the same time, users appear to be taking vendor hype about ATM being an ideal LAN backbone replacement with more than a grain of salt. "I wouldn't even think about putting ATM in the backbone today. It is far too immature," said William French, senior project leader at Merck & Co. in Whitehouse Station, N.J. "We're not going to buy ATM just because it's ATM."

Other highlights of the show included the following:

- Sure, wireless communication is expensive when compared with regular phone lines, but it should be, said one ComNet speaker. "Wireless is like ocean-front property. There's only so much [spectrum], so you got to pay for it," said David L. Lyon, president of **Pacific Communication Sciences**. Lyon knows all about oceans because his company is based in San Diego, where even the down-and-out can live on the beach. One cellular modem with sunblock, please.
- Internetworking players continue to jump on the World-Wide Web bandwagon. Sources at **UB Networks** said the Santa Clara, Calif., company will soon bring a Web server on-line that will offer UB users services such as sales, support and "virtual trade shows."

Several other networking firms, such as **Cisco Systems**, offer similar services via the Web.

- **AT&T** and **Lotus** announced plans to integrate their respective voice, fax, electronic and messaging applications. Jointly developed products are expected later this year.

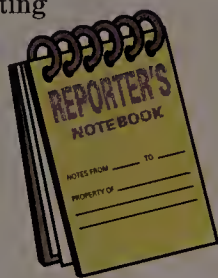
- Perhaps inspired by President Clin-

ton's conciliatory State of the Union address, senior Republican and Democratic congressional staffers said Congress will submit a bipartisan bill this year to deregulate the telecommunications industry, triggering a competitive free-for-all among long-distance and local telephone carriers and cable TV companies. "The engine in this legislative train is

opening up monopolies," said Michael Regan, minority counsel on the House Energy and Commerce Committee.

The bill will be "more deregulatory" than the deregulation bill that died in the Senate last year, conceded Democrat Kevin G. Curtin, chief counsel and staff director for the Senate Committee on Commerce, Science and Transportation.

*Stephen P. Klett Jr., Michael Fitzgerald and Gary H. Anthes contributed to this report.*



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# WRQ's Reflection eases wireless connections

By Michael Fitzgerald

Would-be wireless computer users will have one less step to take to integrate Cellular Digital Packet Data (CDPD) into the corporate infrastructure thanks to the Reflection Suite from Walker Richer & Quinn, Inc. (WRQ).

A Seattle-based maker of enterprise-

wide connectivity tools, WRQ has used its multivendor knowledge to create a product that seems to reduce frustration for wireless users. The product bypasses the normal application restart typically required when a TCP/IP transaction loses its connection.

In the wireless world, connections are easily lost. This means the user must re-

start the application and hope the connection holds the next time around. The Reflection Suite prevents broken sessions by tricking the system into thinking it is still connected and then re-establishing an actual connection.

Users said they were pleased with the product. "It's a nice feature," said Lee Nolan, senior telecommunications engi-

neer at The Travelers Co., a large insurer in Hartford, Conn. Nolan said the WRQ product is "spoofing the application. It thinks it's still connected."

Nolan said this was important for client/server applications "where [the user] issues a request and maybe it takes the server five to 10 minutes to produce some output. If you lose the session, you have to start all over again."

But analysts said the product's worth must be kept in context.

## Short steps

When using the WRQ connection, users can send data much faster with less chance of having to reboot.

Sending data over cellular can cause major headaches, particularly if there is a connection break that forces the user to reboot.

### WRQ connection

Start application and TCP/IP

Dial and make connection

Send data



### Normal TCP/IP data transfer over cellular

Start application

Dial and make connection

Initialize TCP/IP

Send data

Shut down application and TCP/IP

"It's a good step, but it's just another part of the lattice that has to be built" before wireless systems can be broadly applied, said Kimball Brown, an analyst at Dataquest, Inc. in San Jose, Calif.

The Reflection Suite will ship early this month for \$399. In addition to support for CDPD and circuit-switched cellular, the Reflection Suite includes the following:

- Support for standard communications protocols such as TCP, UDP, IPX and Serial Line Internet Protocol.
- Support for Virtual Device Drivers and Dynamic Linking and Loading.
- Support for VT320 connectivity, a file transfer protocol client, and printing.
- Network management features.

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## New Products

Newbridge Networks, Inc. has announced Newbridge Management Executive, a software suite designed to provide centralized management of large networks.

According to the Herndon, Va., company, Newbridge Management Executive is made up of four separate products: a

network manager, service director, business optimizer and Vivid System Manager.

The network manager lets users configure networks, manage links, monitor operations and manage multitechnology networks from one location.

Prices start at \$10,000 for all products except the Vivid System Manager, which costs \$10,000.

► *Newbridge Networks*  
(703) 834-3600

Alantec, Inc. has announced two Microsegment Ethernet modules and Powersight, network management software for its PowerHub 7000 family of intelligent LAN switching hubs.

According to the San Jose, Calif., company, the Microsegment Ethernet modules let network segments support numerous end stations and manage small high-performance workgroups.

Powersight lets users manage switched LANs and configure and visu-

alize virtual LANs. The product includes bandwidth and fault-management tools.

The four-port Microsegment Ethernet module costs \$6,000, and the six-port Microsegment Ethernet module costs \$6,500. Powersight costs \$4,995.

► *Alantec*  
(408) 955-9000

Cascade Communications Corp. has announced the B-STDx 8000 Multiservice WAN Switch.

According to the Westford, Mass., company, the B-STDx 8000 is a fully redundant, eight-slot modular switch that supports frame relay, Switched Multi-megabit Data Service and Asynchronous Transfer Mode for wide-area network applications.

The switch includes Cascade's Optimum software feature, which eliminates the need for a dedicated line between network switches. A Quickpath feature lets users customize service levels for specific applications.

The B-STDx 8000 costs \$15,000 for a base configuration.

► *Cascade Communications*  
(508) 692-2600

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## Encyclopaedia Britannica

CONTINUED FROM PAGE 63

Edward Valauskas, an Internet consultant in Chicago and co-author of the book *Internet Trouble-Shooter*.

Valauskas said Encyclopaedia Britannica is "supremely confident" that its on-line product will be an adjunct, not a replacement, for its paper editions. "They see it as a way of stimulating sales of other forms of their product," he said. However, Valauskas said Encyclopaedia Britannica will probably have to expand the market for the on-line product

beyond colleges if it hopes to recoup what he said was \$4 million to \$5 million in research and development costs.

Already, though, the on-line version has caused Encyclopaedia Britannica to ditch its nascent CD-ROM product. Launched last summer, the \$995 CD-ROM contained all 32 volumes of the paper edition. "We looked at the entire electronic strategy and tore it up," Esposito said.

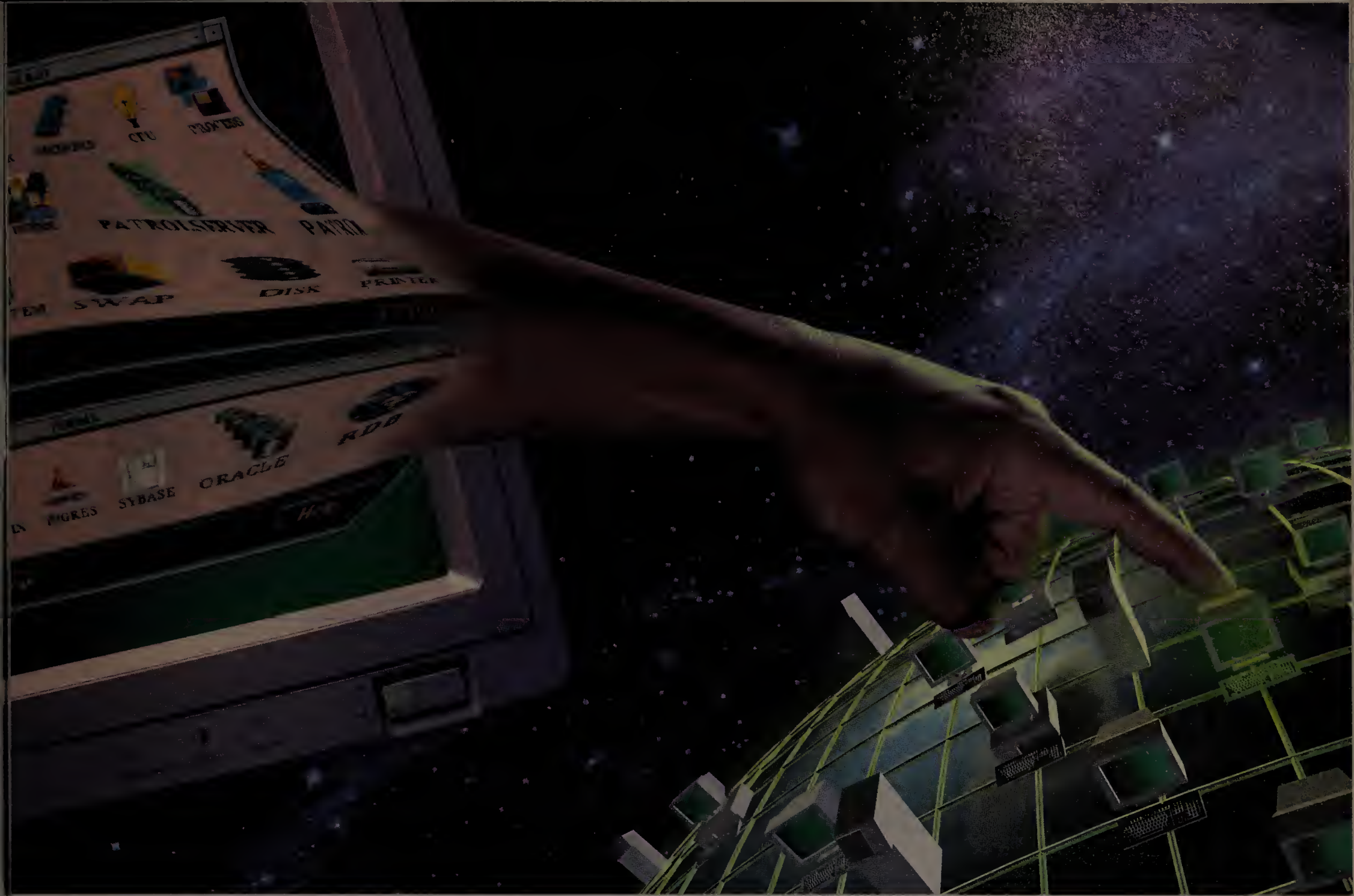
Advantages of an on-line service vs. a static CD-ROM include the ability to update content, include much more content and upgrade search engines. An encyclopedia on a Web server could also include hot links to other resources, both free and paid, elsewhere on the Internet.

"By the end of '95 or early '96, you'll have a situation when the Internet is a very real platform for publishing," Esposito said.

### Just a fraction

Ninety-seven percent of U.S. households have TVs, 90% have dictionaries, but only 5% have encyclopedias, according to Encyclopaedia Britannica.





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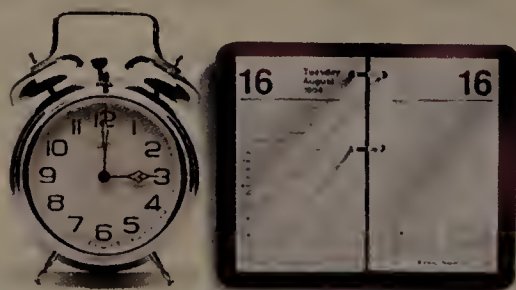
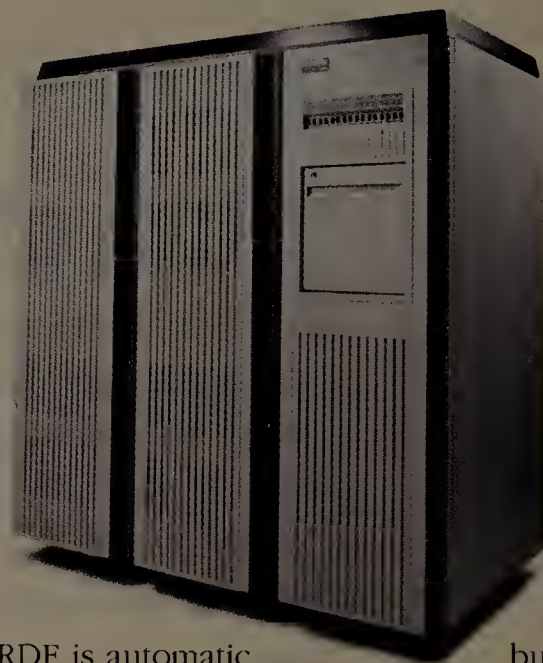
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## Migration strategies

### Users parry with big iron

By Neal Weinberg

Daniel Reddy, manager of technology services at New England Power Service Co., faced a dilemma last summer.

His long-term cost-containment strategy was to move applications off the mainframe for his parent company — New England Electric System in Westboro, Mass. —



**New England Power Service's Daniel Reddy received project financing through Digital**

which serves 1.3 million customers in three states.

But the utility purchased a financial management package to replace a home-grown program, and that created an immediate need for a third engine to its IBM ES/9000 mainframe.

Today, Reddy's IBM mainframe upgrade has been completed. **Users parry, page 76**

### SunGard stung by virus

By Julia King

■ Disaster recovery provider SunGard Planning Solutions last week disclosed that it had unwittingly shipped a computer virus to 35 of its customers after its own in-house virus scanning system failed to detect any problems.

Discovered by a customer in late December, the virus, known as "Antiexe," was embedded in copies of SunGard's newly developed Windows-based comprehensive business recovery program. Companies use the software to develop contingency plans for preserving and recovering data in emergencies.

As a provider of disaster recovery services, "the irony of this is not lost on us," said SunGard President Bruce Battjer, who referred to the incident as a "disaster in public relations" for the Wayne, Pa.-based company, a subsidiary of SunGard Data Systems, Inc.

#### Security upgrade

Since the incident, SunGard has beefed up its virus detection procedures to include two different types of scanning on master disks and random checks on software diskettes created from them, Battjer said.

He also noted that even though the SunGard software contained the Antiexe virus, no customers' computer systems were infected by it.

"To get infected, you would have to boot your system with the disk

in the drive, and in our installation processes, there's no reason you would boot that way," Battjer said.

Last week, industry experts agreed that embarrassing incidents such as the one at SunGard are not without precedent.

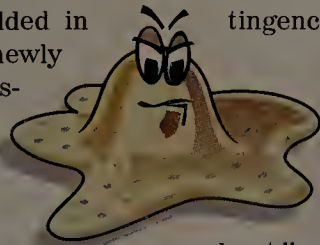
"For as much due diligence that is provided within the industry, there are always things that get through the cracks," said Tari Schreider, a partner at Contingency Planning Research, Inc. in White Plains, N.Y.

"Diskettes with viruses occur more frequently than we hear about," agreed Alan Freedman, a Bankers Trust Co. vice president in charge of global disaster recovery and business contingency planning.

"The difference is you don't hear about it. I think SunGard just got caught."

Battjer said SunGard responded to the original customer's virus alert by immediately notifying other customers that had received copies of the recovery program between Thanksgiving and Christmas. SunGard then ran tests of its own, using in-house scanning software and the same software the customer had used, a scanning program from McAfee Associates, Inc. in San Mateo, Calif.

Four separate tests using SunGard's scanning software yielded nothing. But the McAfee program traced the virus to one of 12 master disks used to make copies of the recovery program. Subsequently, SunGard shipped the 35 customers a copy of the McAfee software free of charge, Battjer said.



## IBM kicks in with added CICS support

Systems management support planned for OS/2, SP2 lines

By Craig Stedman

IBM later this year will try to make the phrase "distributed CICS" less of an oxymoron for large shops facing the nightmarish task of separately managing and supporting the different versions of the venerable transaction monitor.

As part of a wide-ranging announcement late last month, IBM said that in the fourth quarter it plans to extend mainframe-based CICS systems management support beyond the data center to encompass distributed CICS for OS/2 servers. Other nonmainframe CICS servers are due to be added to the fold next year.

Executives from IBM's software laboratory in Hursley, England, said the company also will deliver a version of its CICSplex System Manager for its mainframe-class SP2 Unix systems by the middle of this year. That product will be functionally equivalent to the mainframe CICSplex software, they added.

#### Monitoring through mainframes

CICS for OS/2 servers in departments and branch offices will be brought under mainframe control through the addition of a CICSplex agent, according to Geoff Sharman, distributed OLTP strategy manager at IBM. Users who have CICSplex on their mainframes would then be able to centrally monitor and manage their distributed CICS environments themselves rather than having to rely on local personnel.

Union Bank in Monterey Park, Calif., has started testing CICS for OS/2 and is looking at using it as part of a branch office automation project that will get under way this spring, said Joe Waynick, assistant vice president of technical support at the bank. But he added that CICSplex support is a crucial element in making a distributed CICS environment feasible.

"If the agent [for OS/2] wasn't available, we wouldn't even consider it because of the overhead involved," Waynick said. "The personnel required to have to go out and service each of the branches would be tremendous." Union Bank has approximately 230 retail banking offices in California, he noted.

An information systems manager at a large insurance company in the Midwest agreed that the CICSplex extensions are needed, especially for Unix systems. That is because the CICS technology available in that environment "is still somewhat immature," he said.

"Assuming that IBM can really deliver, this sounds like it would bring meaningful technology to the table," said the IS manager, who asked not to be identified. His company is designing a major Unix-based risk management application that will require a transaction monitor such as CICS, he added.

IBM is finally gearing up to deliver "what people thought they already had," said Roy

Schulte, an analyst at Gartner Group, Inc. in Stamford, Conn. The CICSplex extensions are aimed at "filling in a lot of the gaps so that distributed CICS really can live up to" its corporate backbone billing, he added.

Managing far-flung CICS installations today "is a painful process" that puts a heavy load on local employees, who may not be equipped to deal with something as complicated as a transaction monitor, Schulte said. "You don't want to have to ask branch offices to be that smart."

#### Some new kinds of CICS

##### IBM's CICS ANNOUNCEMENT INCLUDED THE FOLLOWING ITEMS:

###### Universal client access

Will allow client software for OS/2, Windows, DOS and Macintosh users to directly access any CICS server.

###### CICS for AIX Version 1.2

Will almost double transaction processing performance and support two-phase commits between Unix systems and mainframes.

###### CICS for OS/2 Version 2.0.1

Adds TCP/IP support for connecting to CICS clients and other CICS servers. Will also support C++ and PL/I languages.

Besides providing central monitoring and control capabilities, the CICS for OS/2 agent would allow users to take advantage of the CICSplex software's workload management capabilities for routing transactions around failed servers and bringing them back on-line, Sharman said.

#### Ready for market

Meanwhile, the SP2 version of CICSplex will play a big role in IBM's effort to push that system into commercial environments. Adding CICSplex to SP2 should help dispel its image as "a naked machine," said Jim Johnson, chairman of The Standish Group International, Inc., a consulting firm in Dennis, Mass.

The SP2 version uses a different code base than the mainframe CICSplex but will provide equivalent functionality, Sharman said. The SP2 is currently a parallel processor, but IBM plans in 1996 to start offering configurations that cluster together multiple RS/6000 symmetrical multiprocessors (SMP). The CICSplex software is being designed to support the SMP-based approach, Sharman said.

Sharman also indicated that IBM expects by midyear to offer optional user- or usage-based pricing on the Unix version of CICS. Users can already pay for mainframe CICS according to measured usage, and the AS/400 product is priced by number of users. The price of CICS for AIX is currently tied to the RS/6000 system on which it is run.



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## Users parry

CONTINUED FROM PAGE 73

thanks to financing arranged by an unlikely partner—Digital Equipment Corp.

"It's not an everyday occurrence that Digital would be interested in seeing a customer acquire additional mainframe capacity, but the long-term strategy was to wean [the utility] off the mainframe and onto the Alpha product family," said Steve Logan, business development manager at Digital Financial Services (DFS). Once part of Digital, DFS is now a subsidiary of GE Capital, which finances the sale of Digital products.

Digital customers deal with migration in different ways. Some have been able to get off mainframes entirely, while others have seen downsizing actually fuel the need for mainframe MIPS.

### Mainframe a must

The State University of New York, a major Digital customer, has been migrating to client/server computing during the past several years, said Charles Blunt, associate vice chancellor for information technology systems.

Still, the mainframe serves a valuable function, he said. It remains a good central repository for some applications, especially "heavy-duty transaction processing," Blunt said. And the mainframe is being used increasingly as a network server, he added.

Brian Vautaw, vice president of information technology at Vickers, Inc. in Maumee, Ohio, compares moving off the mainframe with "changing the wiring in your house while keeping the electricity on."

At Vickers, the process took five years, and Vautaw said in hindsight he would have pushed

to do it faster. But the company did accomplish its twin goals of saving money and improving its business practices, he added.

### Too much too soon

Not every mainframe move comes off without a hitch, however. Libbey-Owens-Ford Co. in Toledo, Ohio, pulled the plug on a deal to shift from an IBM mainframe to Digital VAXs two years ago when third-party warehouse distribution software failed to meet the company's requirements, said Richard Wagner, senior information technology manager.

Since then, Libbey-Owens-Ford has turned to IBM for another stab at mainframe migration, Wagner said. The difference is the firm is advancing one application at a time, beginning with data warehousing. The second step will be workflow management.

Looking back on the Digital project, Wagner said, "We bit off more than we could chew at the time."

At New England Power, Reddy's strategy has been to work closely with a small number of key vendors rather than "falling into the trap of getting one of every technology out there." He has put together a Novell, Inc. NetWare-centric network and has avoided having "a zillion little LANs."

"We're not saying the mainframe is going away completely," Reddy said. He has replaced dumb

terminals with Pentium-based PCs for all service representatives. And those machines "are pulling data from Digital midrange computers as well as the mainframe."

But in the future, "all new projects and solutions will happen off the mainframe wherever possible," he added.

Under the long-term financing arrangement with Digital, the savings the utility realizes on the mainframe upgrade will help fund the future purchase of Alpha-based machines.

### Mainframe migration

In a recent survey by Forrester Research, Inc. in Cambridge, Mass., 59% of respondents said they planned to completely rebuild decision-support applications off the mainframe, 25% planned to move existing applications, and 16% were standing pat.

## Briefs

### StorageTek combines units

Storage Technology Corp. is combining subsidiaries XL/Datacomp, Inc. in Lisle, Ill., and Lago Systems, Inc. in Los Gatos, Calif., into one subsidiary called StorageTek Distributed Systems Division, Inc. Based in Lisle, the subsidiary will focus on storage products for distributed, open systems.

### CSC to handle Bell data center

Computer Sciences Corp. said it reached a tentative seven-year, \$200 million agreement with Southern New England Telecommunications Corp. to take over the regional Bell operating company's data center operations.

### SunGard teams with EMC

SunGard Recovery Services, Inc. in Wayne, Pa., has signed an agreement with EMC Corp. in Hopkinton, Mass., to jointly market an electronic mirroring product based on EMC's Symmetrix Remote Data Facility (SRDF). Under the agreement, SunGard will provide customers with electronic

mirroring capabilities using EMC's SRDF microcode, which was designed for use with EMC's Symmetrix 5000 Integrated Cached Disk Array subsystems.

### Distributor buys software suite

Bob Evans Farms, Inc., a Columbus, Ohio, pork sausage distributor, has purchased a suite of manufacturing and distribution software modules from JBA International, Inc. in Rolling Meadows, Ill. It will use the modules to automate manufacturing and distribution at its food product and specialties plants.

### Amdahl to sell Cray servers

Joseph Zemke, president and chief executive officer of Amdahl Corp. in Sunnyvale, Calif., confirmed last week that the company had signed a deal to resell Cray Research, Inc.'s SPARC-based CS6400 commercial server. The Cray machine will be a high-end addition to the SPARC systems Amdahl already gets from Sun Microsystems, Inc. The agreement is expected to be announced shortly, Zemke said. Meanwhile, Amdahl plans this week to expand the number of desktop platforms supported by its Huron client/server application development tools.

### Interlinks Computer Sciences, Inc.

has announced TCPaccess-Fault Tolerant, an add-on feature to Interlinks' TCPaccess 3.1 software that connects TCP/IP networks to MVS mainframes and SNA networks.

According to the Fremont, Calif., firm, TCPaccess-Fault Tolerant recovers from hardware failures or routing changes by automatically rerouting users to a redundant LAN controller or router.

The product features multiplexing facilities and Address Resolution Protocol enhancements for controller failures. A Gateway Daemon has Open Shortest Path First and Routing Information Protocol protocols to handle router changes and failures.

Prices start at \$14,000.

► *Interlinks Computer Sciences*  
(510) 657-9800

IPL Systems, Inc. has announced the Enterprise Storage Server, a high-performance RAID disk array for open systems and IBM AS/400 environments.

According to the Waltham, Mass., firm, the Enterprise Storage Server can provide central storage for up to 16 AS/400, Unix, Microsoft Corp. Windows NT and Novell, Inc. NetWare systems.

The product has a disk capacity of 268G bytes and can be equipped with 4.1G bytes of fault-tolerant cache. Both local and remote storage can be managed from a central location, and independent RAID groups (Levels 0, 1 and 5) can be configured concurrently for specific environments.

Prices range from \$1.39 to \$2.50 per megabyte, based on configuration.

► *IPL Systems*  
(617) 890-6620

Legent Corp. has introduced 24x7, an add-on database utility for IBM's DB2 that works with Legent's Insight for DB2 performance monitor.

According to the Herndon, Va., firm, 24x7 maximizes DB2 availability by dynamically changing DB2 parameters, adding or deleting active log data sets and canceling DB2 threads.

The product can run as a stand-alone batch utility at sites that do not run Insight.

Prices start at \$3,600 for 20 users.

► *Legent*  
(703) 708-3000

ShowCase Corp. has announced a full read/write version of its PC to IBM AS/400 Open Database Connectivity Driver (ODBC) driver.

According to the Rochester, Minn., firm, the read/write ShowCase ODBC driver lets Cognos Corp. Impromptu and PowerPlay users develop client/server applications against AS/400 databases.

The product also lets users update and manipulate files on the AS/400.

The read/write ShowCase ODBC driver costs \$1,000, with a \$1,000 maintenance fee. A server license costs \$5,000, with a \$1,000 maintenance fee.

► *ShowCase*  
(507) 288-5922

VMark Software, Inc. has announced Universe for Windows NT, a postrelational database system that gives Microsoft Corp. Windows NT users access to applications that run on large Unix platforms.

According to the Framingham, Mass., company, Universe for Windows NT provides flexibility on how data is structured within the database, efficient storage and fast response to queries.

The Server Edition of the product supports a high number of concurrent users. The Workgroup Edition supports applications residing on workgroup servers. The developer's tool kit lets users create applications on VMark's products.

Prices range from \$295 to \$395 per user.

► *VMark Software*  
(508) 879-3311

Openservice, Inc. has announced Host Availability and Systemwatch 1.6, management software for distributed environments.

According to the Albany, N.Y., firm, Host Availability notifies systems administrators if a remote host is down without polling from a central host, which eliminates two-way traffic on the network.

Systemwatch 1.6 monitors file systems, mail queues, performance, applications and databases. The product alerts the administrator when problems arise and makes recommendations for appropriate action.

Host Availability costs \$195 per client. Systemwatch 1.6 costs \$395 per client and \$7,995 per console.

► *Openservice*  
(518) 465-1400

### Product short

Firesign Computer Co. has introduced Outbound for Unix, unattended data transfer software. It performs automated data transfers between mainframes and Hewlett-Packard Co. workstations running HP/UX. Cost: Starts at \$11,250 for the host component and \$885 for the workstation component. Firesign Computer, San Francisco, Calif. (415) 398-7228.



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Nearly all editorial awards are decided by committees of experts who sit and review entries and use their best judgment to decide which publication or article is best. There is nothing wrong with this process — and it has certainly produced many awards for *Computerworld* — but, frankly, the opinions of our readers are more important to me than the opinions of experts. It is readers, after all, who are best able to judge the quality and usefulness of the material they read. And it is readers — not experts — for whom we write.

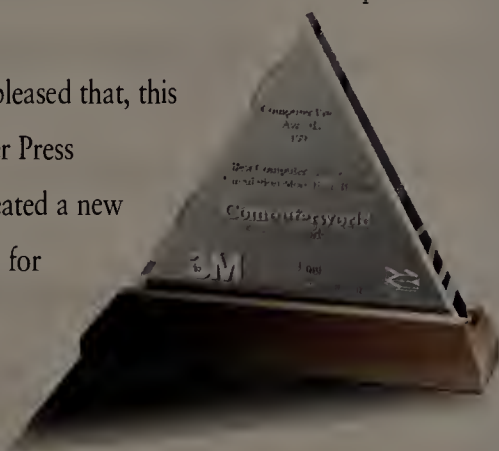
So I am very pleased that, this year, The Computer Press Association has created a new category of awards for their Tenth Annual Computer Press Awards: "The CPA Reader-Chosen Awards." These awards will be decided by the votes of publication readers. It is your chance to make your opinions count. I, for one, will be very interested in what you have to say.

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Bill Laberis  
Editor in Chief



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# COMPUTERWORLD

These are the stories we have submitted for review by the CPA. Please feel free to nominate these, or any other articles you've enjoyed during the year.

### INSTRUCTIONAL OR EDUCATIONAL ARTICLES OR SERIES

- Guide to PC Support; *Kevin Burden, Stephan Clancy, Robert Johnson* (Dec. 5th)
- Guide to E-Mail; *Avery Jenkins, David Marshak* (Oct. 24th)
- Guide to 32-bit Operating Systems; *Jonathan Eunice, Mike Sullivan-Trainor, Garret Ray* (Apr. 11th)
- VIRUS; *Phillip Zakas* (July 11th)
- Software Product Review: Test Drive; *Jeff Angus, Al Giovetti* (Nov. 14th)
- Software Product Review: Test Drive; *Garret Ray* (Dec. 12th)

### FEATURES OR REVIEWS

- High Tech Wagering: Jackpot or Jeopardy; *Joe Maglitta* (Feb. 7th)
- Gays at Home in High Tech; *Ellis Booker* (Sept. 26th)
- Demonstrating Value of Technology; *Alice LaPlante* (August 15th, Oct. 3rd, Oct. 31st)
- Is COBOL Dead? *Alan Pursell, John Cunningham* (April 25th)
- Decree: Deal or Dodge? *Stuart Johnston, Mitch Betts* (July 25th)
- Migration Costs Stoke User Anger; *Rosemary Cafasso* (May 16th)





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12 Processors	<b>24,757</b>

##### **HP** *T500*

12 Processors (maximum)	<b>23,717</b>
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##### **SUN** *SPARCcenter 2000*

20 Processors (maximum)	<b>24,864</b>
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## Vendors fudge on product ship dates

By Kim S. Nash

Delays, delays, nothing but delays. Or are they?

An increasingly common practice among software vendors is to avoid specifying ship dates for new products, save for vague time frames. The tactic can drum up user interest in future goods without locking suppliers into firm delivery schedules.

But users can be left hanging, wondering when or if they will receive promised products or fea-

Nonetheless, users can end up feeling misled or shortchanged once a product finally ships.

For example, Informix Software, Inc. in Menlo Park, Calif., created high user expectations when it began talking about its object-based New Era fourth-generation language in mid-1993. Informix officials touted the product as a so-called second-generation client/server development tool that could split, or partition, application logic between the client and server. Yet when New Era 1.0 shipped last

Promises, promises			
A SAMPLING OF DELAYS			
	What is missing	Original release date	New release date
IBM	Upgrades for DB2/2 and DB2/6000 databases	Before end of 1994	By mid-1995
Informix	Partitioning capability in New Era development tool	November 1994	By June
Oracle	GUIs on financial packages	Before end of 1994	Q1 1995

tures. Or the method can backfire and send users elsewhere for needed products.

For example, Consolidated Edison Co. of New York, Inc. is a large IBM DB2 mainframe shop. But with pressure to downsize and become more efficient in the face of pending deregulation in the utility industry, the company did not wait for key upgrades to IBM's Unix and OS/2 databases. It bought Sybase, Inc. databases instead.

Version 2.0 of IBM's DB2/2 and DB2/6000 were expected before the end of last year. At least that is what Steve Mills, general manager of IBM's Software Solutions division, told DB2 user group attendees last May. Indeed, beta testing started last November. Availability will be "based on how well the beta does," said Janet Perna, director of database technology at IBM. "If everything goes terrifically, it could be first-half" delivery.

Such delays are often just a matter of vendors' underestimating the work, said Judith Hurwitz, an analyst at Hurwitz Consulting Group, Inc. in Watertown, Mass.

"These are very complicated products, and so much can hold you up," she said, referring to the numerous hardware, software and operating system combinations at work at most user sites.

July, that capability was missing.

Despite users' impressions to the contrary, "we didn't say that partitioning would be part of the initial release," an Informix spokeswoman said. New Era 2.0, slated to ship in six months, will contain the feature, she added.

Dunlop Tire Corp. in Buffalo, N.Y., rolled out Oracle Corp.'s financial and manufacturing applications despite missing graphical user interfaces (GUI). Oracle said it would have GUIs on its applications before the end of 1994, but the key client/server feature has been delayed until April, said Ray Lane, president of worldwide operations at the Redwood Shores, Calif., company.

Gupta Corp. in Menlo Park, Calif., plans to ship a major upgrade to its SQLBase database next month, but some users who attended Gupta's developers conference last June thought it would be out before the end of 1994. Indeed, product managers at the show told users that SQLBase 6.0 would be ready for initial release before the end of the year.

The product is not late, said Matt Miller, director of product marketing at Gupta, because "we always said we would ship the product when the quality was acceptable. We've not publicized a ship date."

## Methodologies sought to solve client/server puzzle

By Elizabeth Heichler and Rosemary Cafasso

■ The days of hit-and-run client/server development are rapidly drawing to a close as information systems managers seek to bring those tools under the control of more formal, standardized processes.

Traditional mainframe-based software development methodologies are not the answer because they are often judged inadequate to manage the building of client/server applications. Their most frequently cited shortcoming is that they assume a monolithic implementation — mainframe plus terminals. Therefore, these older methodologies also cannot support the more complex process of client/server design, with its multiple disparate processing resources, networks and middleware.

Consequently, users are either rolling out their own methodology or evaluating a new class specifically designed to manage client/server development.

### Decisions, decisions

Customers are getting a greater selection of off-the-shelf wares.

This week, Rockville, Md.-based Intersolv, Inc. will unveil a version of its Excelerator II analysis and design software for object-oriented client/server application development.

Separately, LBMS, Inc. in Houston plans to release a major new component of its Windows-based Process Engineer this month. And Structured Solutions, Inc. in Atlanta recently released a client/server version of its AD/Method software.

But with almost as many methodologies becoming available as there are client/server tools, the real issue for users is that there is no standard approach for managing this process, said Donald DePalma, a senior analyst at Forrester Research, Inc. in Cambridge, Mass.

Yet another issue is the fact that "none of this systems development life cycle stuff is broad enough or robust enough for client/server development," said William Tranter, senior vice president and chief information officer at Prudential Insurance Co. in Roseland, N.J. "How do you deal with" the systems development life cycle — and security — in a very dispersed operational environment, "especially as client/server applications become more robust and more interactive? That's going to be a problem," he said.

At Sprint Corp., client/server development began to crop up around the company about

two years ago. At that point, the IS department recognized the need to bring these tools under the control of a more formal methodology, said Steve Sage, a technical specialist at the telephone company's Kansas City, Mo., offices.

Sprint identified specific requirements that a client/server development methodology should address, including the need to handle more complex security and reliability issues and to accommodate the increased use of prototyping capabilities.

Client/server development methodologies must also take into account the need to partition processes and data. And they should acknowledge complex technology architectures that include networks and middleware, said Fred Hencke, director of client/server development and integration services offerings at Computer Task Group, Inc. in Chattanooga, Tenn. Hencke's group contributed to the development of the latest release of Structured Solutions' AD/Method for Client/Server and will deploy the methodology throughout Computer Task Group's organization in the next three to four months, he said.

### Points to ponder

Users agreed that it is important to look for flexibility in methodologies and to stay away from those that lock developers into code generation or specific development tools. At GE Capital Mortgage in Raleigh, N.C., methodologist Jack Rabren said his company avoids the code-generation aspects of its computer-aided software engineering (CASE) suite and takes a data-centric approach to analysis.

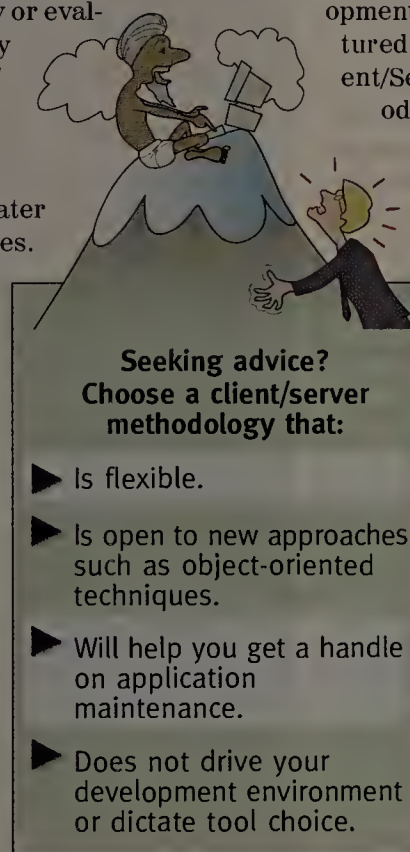
These steps yield benefits, Rabren said, including the ability to use the same

analysis and design methodology regardless of whether the application is implemented in Smalltalk, C++, Microsoft Corp.'s Visual Basic or Powersoft Corp.'s PowerBuilder.

"You will never find a methodology that does everything for client/server — not yet," said John Collins, CIO at Plaza Home Mortgage Bank in Santa Ana, Calif. His group has developed its own that is based in part on some of the tenets of traditional CASE methodologies.

Whatever approach a development organization takes to establish a client/server methodology, having one can help control the runaway costs of client/server applications, according to Sage.

"Client/server increases complexity, and so it increases maintenance and costs. Having a methodology helps a lot with that," he said.



Seeking advice?  
Choose a client/server  
methodology that:

- ▶ Is flexible.
- ▶ Is open to new approaches such as object-oriented techniques.
- ▶ Will help you get a handle on application maintenance.
- ▶ Does not drive your development environment or dictate tool choice.



# Need to reach all kinds of data fuels retrieval tool boom

Users look for Internet access, communication with relational databases

By Kim S. Nash

Image- and text-retrieval products are coming out of the woodwork as information systems managers start to build applications that organize the estimated 80% to 90% of corporate data not stored in existing databases.

Such newfangled applications dish out data that does not immediately lend itself to neat relational or hierarchical structures. But text and image databases — which store information in chunks rather than rigid rows and tables — require appropriate indexing and query tools.

"It's no use developing whiz-bang multimedia or text applications if you don't have the products to go after the information you want or to ask questions of the databases," said Roland Cole, executive director of Software Patent Institute, Inc., a nonprofit

agency in Ann Arbor, Mich. The institute is amassing a giant text database of software, manuals, patent documents and other material for computer industry historians and the U.S. Patent Office.

Cole chose BRS, a text database from Dataware Technologies, Inc. in Cambridge, Mass. The database server's ability to allow a variety of clients helped sway his decision, Cole said.

## Image grabber

IBM plans to announce this week Multimedia Manager, a utility for indexing and fetching images stored in DB2 databases, according to a source close to the company.

For example, Cole said he wants to give Internet users access to his database of software history when it is finished, and BRS was designed to accommodate dial-in users.

In fact, Internet accessibility is a selling point for many text- and image-retrieval products. OpenText Corp., also in Cambridge, recently announced OpenText 5, an upgrade to its text database that lets users perform searches and queries graphically. The enhanced version also supports Standard Generalized Markup Language (SGML) and HyperText Markup Language (HTML), two popular file formats for posting documents to the Internet.

Health care, law and other vertical markets that have begun to adopt text products to handle their huge volumes of data are also increasingly participating

## Right direction

High prices for text databases have begun to give way. Two to three years ago, average price tags for a multiuser text database ranged from \$40,000 to \$50,000. Now, \$9,000 to \$15,000 is more the norm.

in public and private on-line services, said Mike Farrell, executive vice president of marketing at OpenText. "We have to be there too with SGML and HTML or we risk losing business," Farrell said.

An OpenText 5 starter kit for five users costs \$15,000 and includes the server

engine, client software and graphical query aids.

Just as on-line access is important, so is the ability to talk to existing relational databases.

Indeed, Dataware Technologies recently unveiled an application program-

ming interface (API) designed to link BRS to databases that understand SQL, the standard means of talking to a relational database. Called Total Recall, the API was created in the UK by Kinesis Computing Ltd., but Dataware Technologies has obtained the right to sell it in the U.S. and other countries, company officials said.

# Which route would you take



*Other parallel database software*



*New DB2 Parallel Edition*



**Versant Object Technology Corp.** has announced Versant Argos, a Smalltalk development environment.

According to the Menlo Park, Calif., company, Versant Argos is based on ParcPlace Systems, Inc.'s VisualWorks and provides object modeling, development and deployment on Versant's object

database management system.

Versant Argos automatically builds the Smalltalk classes that make up the code. All VisualWorks functionality is available, including access to legacy data in major relational databases. Team-based development features include versioning capabilities.

Prices for Versant Argos start at \$3,000.

► **Versant Object Technology**  
(415) 329-7500

**Micro Focus, Inc.** has announced Micro Focus Dialog System 2.5, a Cobol development environment for graphical user interface client/user and database applications.

According to the Palo Alto, Calif., company, Micro Focus Dialog System 2.5 includes a complete relational database from XDB Systems, Inc. for fast application prototyping.

A Visual Application Manager provides a visual map of the structure of a

Dialog System screen set and the relationship among windows, dialog boxes and controls. Other features include an enhanced debug environment and a Connection Manager that lets users define links between the user interface and the application code.

Micro Focus Dialog System 2.5 costs \$1,250.

► **Micro Focus**  
(415) 856-4161

**Object International, Inc.** has announced Together/C++ 1.2, development software that provides synchronized object modeling and C++ programming.

According to the Austin, Texas, firm, Together/C++ 1.2 automatically produces documentation that is ready for Windows help file generation along with the code. Both the object model and the C++ code are synchronized when changes are made.

Other features include a C++ parser, view control over model elements, files and directories; and automatic or manual layout of object models. Additional object model and language-specific features are included.

Together/C++ 1.2 costs \$997.

► **Object International**  
(512) 795-0202

**Corporate Computing International** has announced RadPath 1.1, graphical user interface (GUI) development software for client/server applications.

According to the Bannockburn, Ill., company, RadPath 1.1 breaks down the GUI development process into three paths — infrastructure, management and development — so pieces of the applications can be built and tested while other pieces are in design.

Each path takes the user through a customizable series of tasks and choices that emphasize cyclical development. On-line checklists, deliverable forms and reports are included to provide a consistent development process.

RadPath 1.1 costs \$1,595 for a single-user license. An annual 10-user license costs \$12,995.

► **Corporate Computing International**  
(708) 374-1995

**Ilog, Inc.** has announced Ilog Views 2.0, C++ development software for graphical user interfaces (GUI).

According to the Mountain View, Calif., company, Ilog Views 2.0 integrates interface components, two-dimensional graphics and object behaviors so GUIs created with the product interact through images and graphics instead of text.

A builder and 2-D graphics object library are included. Users of other GUI builders can use Ilog Views 2.0 to complement interfaces with graphics and objects.

Ilog Views 2.0 costs \$7,500 on Unix platforms and \$5,000 on PCs. It includes source code so developers can create their own GUI builder.

► **Ilog**  
(415) 390-9000

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Parallel Function	Oracle Parallel Query Option Version 7.1.3	IBM DB2 Parallel Edition Version 1.0
Optimized for Parallel	No	Yes
Consistent Architecture with SP2	No	Yes
Index Scan	No	Yes
Inserts	No	Yes
Selects	Yes	Yes
Updates	No	Yes
Deletes	No	Yes

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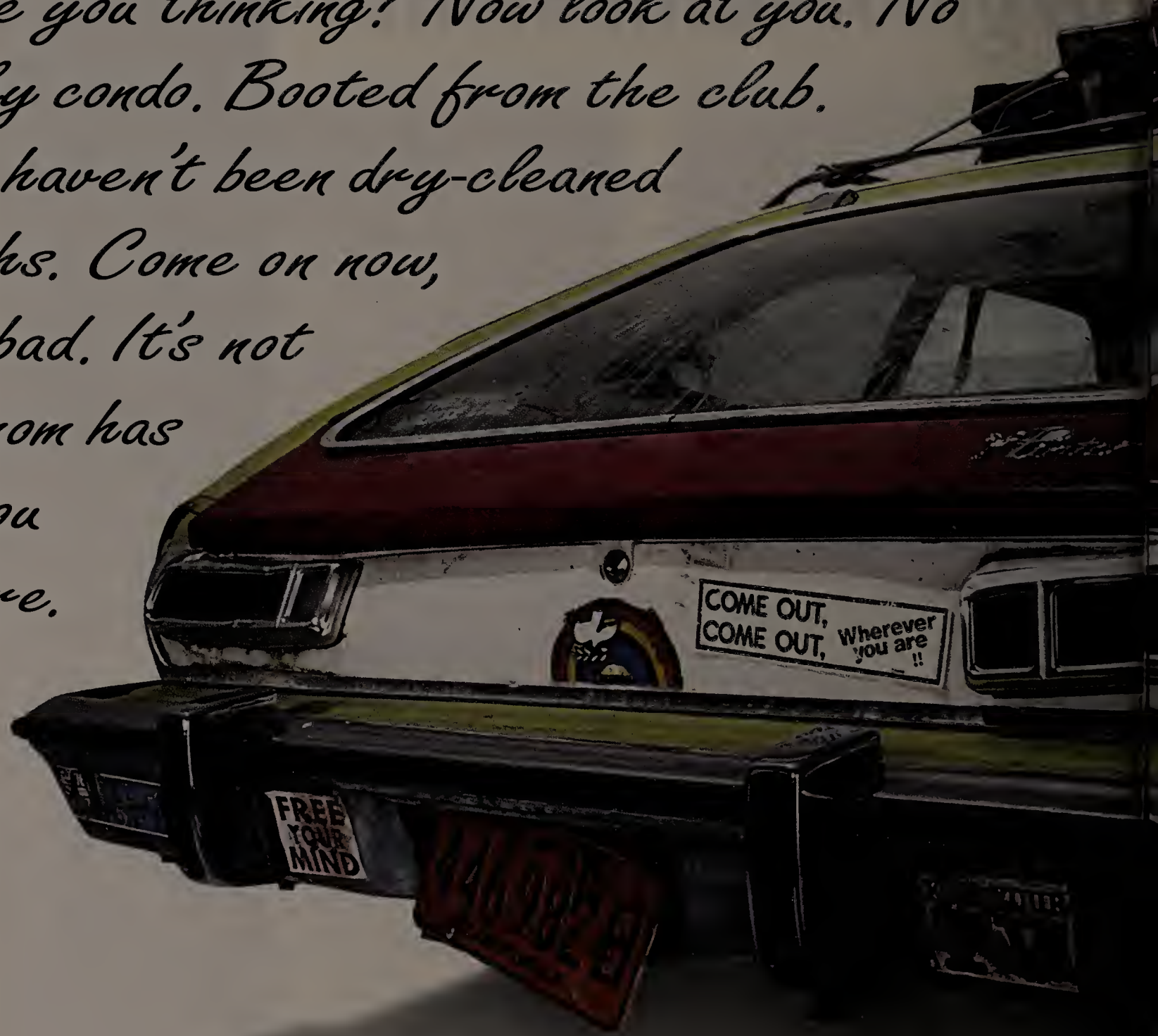
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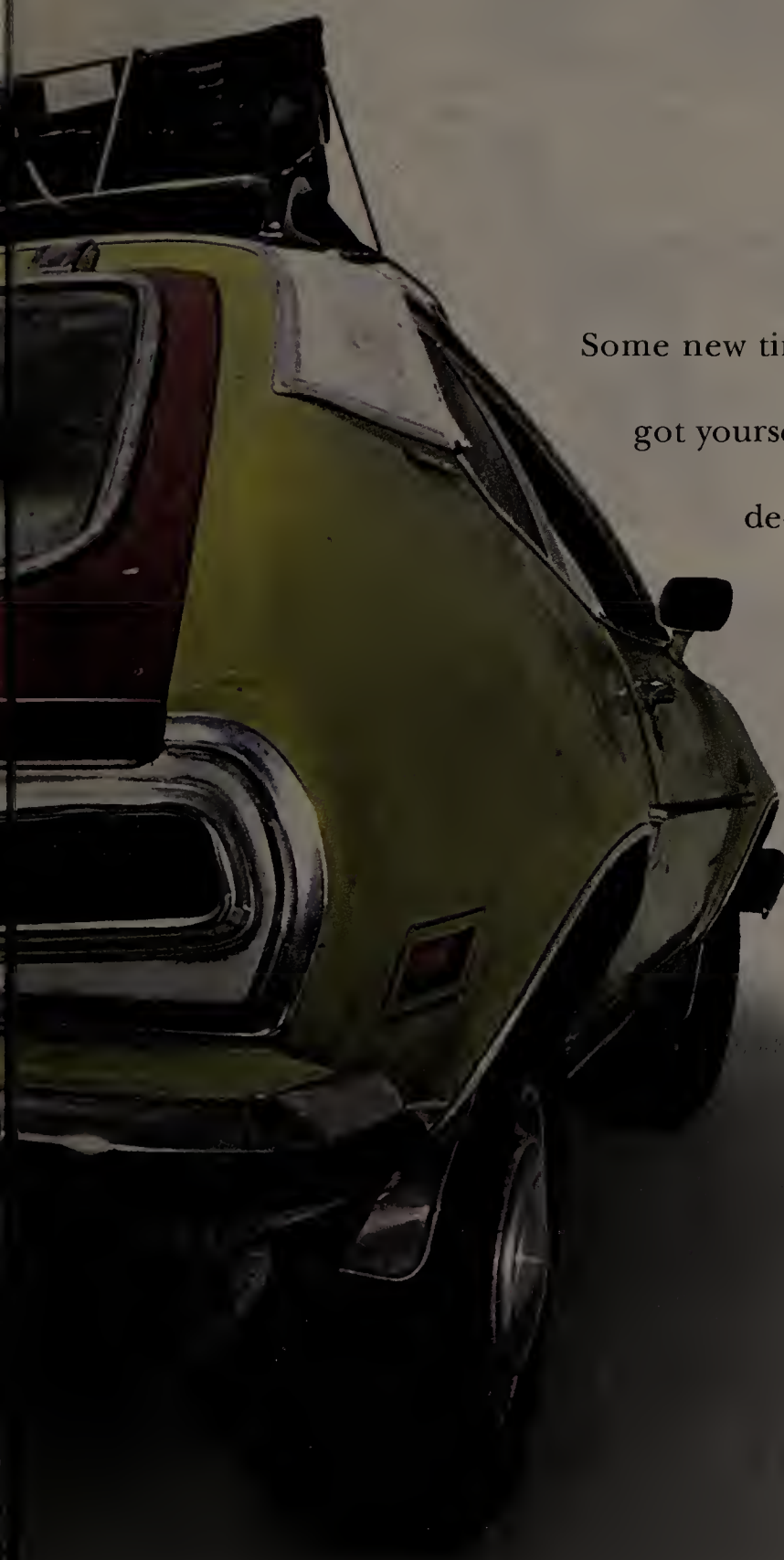
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# COMPUTERWORLD

# Object standards accelerate

## Microsoft blesses emerging standard, IBM pulls mainframe into new development role

The Irish Republican Army may not be the only group offering an olive branch in Europe last week.

Microsoft's announcement that it will support a new breed of major corporate development standards, COM is the object model behind many of the industry's major object standards groups. The desktop behemoth is now taking part in the standardization process.

At an Object Management Group meeting in Dublin, Microsoft threw its weight behind an emerging specification for COM, the Common Object Model. COM is the object model behind many of the industry's major object standards groups. The desktop behemoth is now taking part in the standardization process.

At an Object Management Group meeting in Dublin, Microsoft threw its weight behind an emerging specification for COM, the Common Object Model. COM is the object model behind many of the industry's major object standards groups. The desktop behemoth is now taking part in the standardization process.

By Ed Szatwala

In early October, IBM will roll out several object-based tools designed to finally and fully embrace the mainstream in corporate computing environments.

The computer giant will announce versions of C++, SOM-objects, Smalltalk and an object-oriented version of Cobol for its MVS/mainframe operating system, according to sources briefed by IBM. The company will also announce its own class libraries, called the Application Class Library Services. The announcement is tentatively scheduled for Oct. 4.

Final versions of these tools are expected to be available at varying dates from mid- to late November.

Among the several key corporate information systems products that have exemplified early versions of the products, most believe they give IBM the best chance of realizing its deferred dream of cross-platform application development.

IBM 14

**The object is money**

Approximately how much of your \$5 billion budget will be for object-oriented products in fiscal 1990?

100,000,000 \$100,000,000  
200,000,000 \$200,000,000  
300,000,000 \$300,000,000  
400,000,000 \$400,000,000  
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## Success strains SAP Support

By Rosemary Calasao  
ORLANDO, FLA

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After 20 years of chugging alongside other conservative mainframe software vendors, SAP AG is suddenly facing the fast-paced music of success in the client/server market. Its most luring note so far is dealing with a shortage of consulting expertise.

The German company is emerging as a dominant force against competitors such as Oracle Corp. SAP has built a worldwide customer base of 1,600 for its 2-year-old R/3 client/server suite of integrated applications. Its Sapphire

## P Support All clears for telecommuting

here last week drew 4,000 attendees.

Also last week, SAP announced that Pacific Gas & Electric Co. in San Francisco had signed an

**By Mitch Davis**

---

**Time to hit the accelerator on those fledgling plans for a telecommuting program**

By Nov. 15, large companies in the nation's smoggiest cities must have a plan for cutting employee commuting by

# COMPUTERWORLD'S EIGHTH ANNUAL SALARY SPECIAL REPORT SURVEY

## CASH ON DELIVERY

*Computerworld's* Eighth Annual Salary Survey finds that IT professionals' pay is interestingly linked to their performance, and many more with it was. Also, our readers reveal which jobs are hot, and where to find the biggest paychecks and benefits packages. **MANAGEMENT**, page 55  
Also, see **NEWS**, page 20




Photo: © The New York Times

The requirement will have an impact on an estimated 13 million employees in such metropolitan areas as Los Angeles, San Diego, Milwaukee, Chicago, Houston, Philadelphia, Baltimore and the New York-New Jersey region.

Long, controller at PG&E. "We were looking for that integration, and we wanted it all tied together SAP met that criteria."

At Foxmeyer Corp., a pharmaceutical company in Carrollton, Texas, CIO Robert Brown said, "We are betting our company on this." Foxmeyer plans to replace a mix of legacy systems, including IBM DB/2 database applications and System/36, with SAP software by the end of next year.

R2 was part of an extensive evaluation of other client/server application offerings, but it beat the competition in volume processing.

Some pioneering firms, such as Newark, N.J.-based Prudential Insurance Co. and Palo Alto, Calif.-based Hewlett-Packard Co., are gearing up to include R2 as part of their compliance plans.

Prudential has several million business units where computer programmers and customer service agents now work together to process insurance claims.

Telework support

What technology does your company offer telecommuters?

85% 65% 44%

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Fax  
Modem  
Dialup  
Other

base 300 computers, multiple responses allowed

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# Paper

By Roger Kay

# chase

PLAYERS IN the traditional  
paper forms industry are in  
A LIFE AND DEATH  
STRUGGLE in a  
shrinking market.

To survive, they're  
counting on IS to help  
them break in to  
the growing electronic  
forms and services industry.


**Y**ou might think an industry that prints stock certificates would have an easy time making money. Think again. The once placid and profitable paper forms business is on the ropes.

The large, previously stable forms printing companies have been overtaken by the fast-growing electronic forms industry, which is driving the old-line companies to the edge. Some paper forms companies have a shot at getting back in the ring. But they must launch new information technology-based business strategies to quickly reinvent themselves before they go out of business.

"Long term, I don't know what they're going to do for a living," says Lisa Thompson, an industry analyst at Punk, Ziegel & Knoell in New York.

These companies face a double-barreled threat: They must deal simultaneously with a major shift in technology and a shrinking market. Stored electronic forms — which companies can print for themselves on demand — are rapidly replacing preprinted paper forms.

*Paper chase, page 88*



David McKay,  
vice president  
of information  
services at  
Moore Business  
Forms

MARC BERLOW



# Paper chase

CONTINUED FROM PAGE 87

Electronic forms are not only more convenient than paper but less costly. Thus, computerization is causing a collapse in total forms market revenue.

From the point of view of these creaking giants, information technology is eating their lunch today, but it is also offering them a chance to sit down and join the meal tomorrow. Some of these firms may be able to leverage their knowledge — built over the years — of the business processes that require forms and win a slice of the new electronic forms market.

But that strategy will work only if they can make quick inroads into the new electronic sector and rapidly shift their corporate emphasis from manufacturing to service.

All this puts the information systems organizations at these companies under heavy pressure to enable such changes. Chief information officers are shoring up both the cost and revenue sides, introducing systems to help cut operating expenses and working to create — both with internal resources and in partnership with electronic forms companies — new marketable forms applications.

## Execs to the rescue

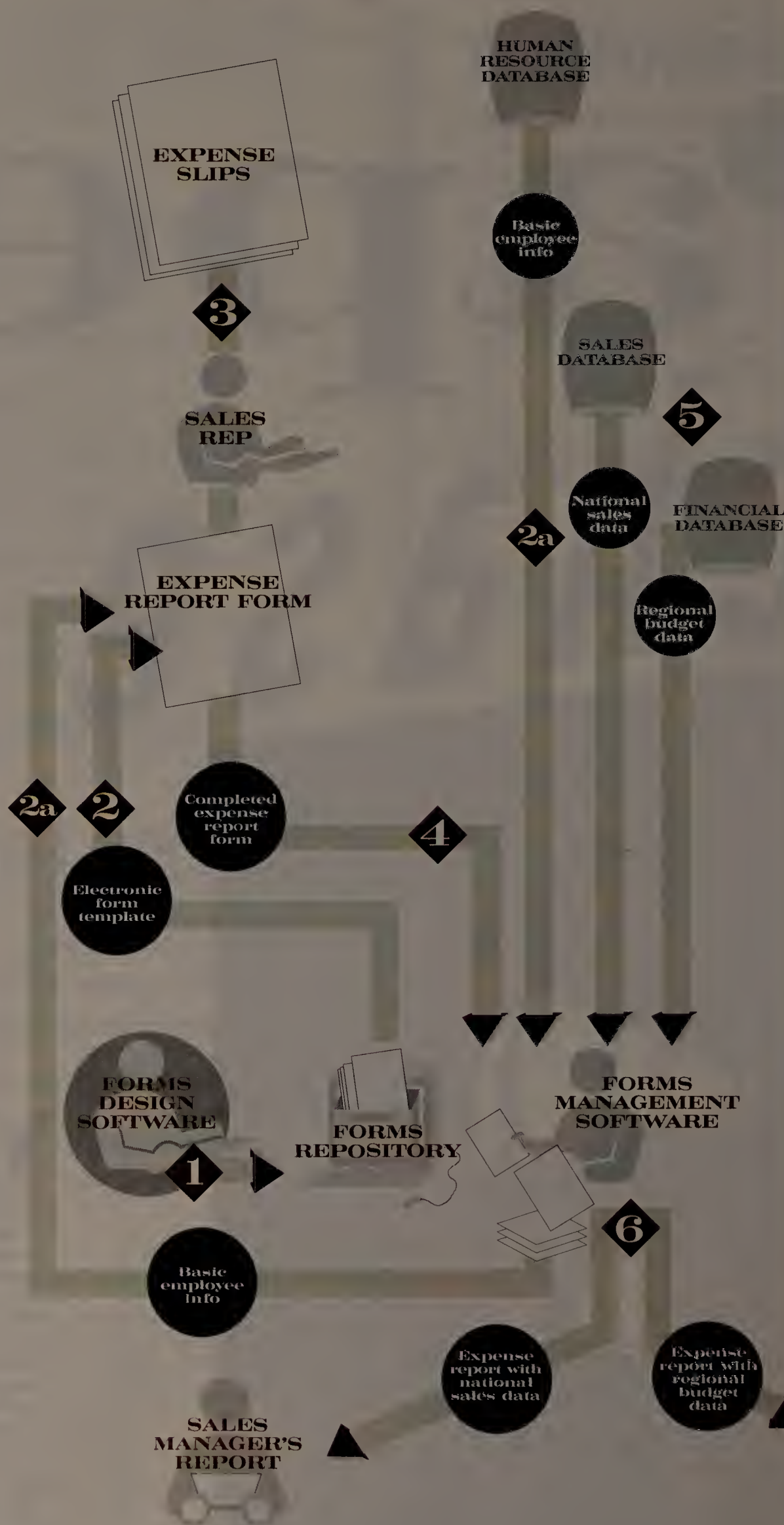
One paper forms company that is fully committed to an information technology-driven strategy is Moore Business Forms, Inc. in Toronto. It is the largest paper forms printer in North America, with \$2 billion in yearly revenue. This commitment is perhaps nowhere better demonstrated than in the pedigree of Moore's president and chief executive officer, Reto Braun, who was formerly second in command at Unisys Corp.

Moore also upgraded the senior IS position to vice president of information services when it brought David McKay on board last year, putting him on par with the vice presidents of finance, manufacturing and marketing. Previously a consultant at Gartner Group, Inc. and Nolan, Norton & Co., McKay was charged with orchestrating some dramatic changes in the IS department.

"We're re-engineering our whole business," McKay says. In 1994 alone, Moore closed plants, laid off workers, revamped its order-to-cash conversion process, restructured manufacturing and took other costs "out of the equation," McKay says. The company is also getting into the electronic forms industry, "and we're using the technology to make that fly."

McKay says he looks back at 1994 as a year of positioning. "We were able to drive the re-engineering design to a point where we could go into development," he says. And "the company has bought into a higher IS funding level than it has ever accepted before." McKay anticipates 1995 will be a year of rolling out new systems. "I delivered the first release of my re-engineered system" in January, he says.

Some of this year's investments in IS were designed to cut operating costs as well as enhance customer service.



ELECTRONIC FORMS must be integrated not only with databases but with messaging systems. The electronic forms products of both Delrina and JetForm link to VIM (Lotus' Vendor-Independent Messaging) and MAPI (Microsoft's Messaging Application Programming Interface) standard E-mail systems.

## SALES REP'S EXPENSE REPORT

- 1 Designers craft expense report form using forms design software. Electronic form template is placed in forms repository.
- 2 Sales rep calls up template. Forms management software gathers basic employee information, such as name, date and department, from human resource database and partially fills out form.
- 2a
- 3 Sales rep completes form using data from expense slips.
- 4 Rep sends completed form to forms management software.
- 5 Forms management software gathers information from corporate databases.
- 6 Forms management software sends custom-configured reports to departments and managers via E-mail system.

Internal processes such as expense reporting represent the most easily replaceable part of the forms business. The far larger slice of the pie is in the flow of interorganizational forms, such as invoices, purchase orders and tax documents. This market, although appetizing, is still not standardized. However, EDI enables inter-company electronic transactions that lend themselves to the use of electronic forms flow products.

# THE FLOW OF THE FORM



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McKay expects to roll out a number of efficiency tools, including sales-force automation, production scheduling and shop-floor automation systems. The sales force will now operate with laptops, initiating order entry from the field and making some pricing decisions remotely. The production scheduling software will manage the how (web press or electronic), where (Moore, customer site or third party) and when of production. Shop-floor systems directly monitor and measure production processes, gathering time and materials usage data, which then becomes input for cost-management programs.

## The move to services

In addition to investing in its internal information systems, Moore bought a 20% stake in JetForm Corp., a \$12.5 million electronic forms software supplier in Ottawa, and has an option to acquire more. The JetForm acquisition is a critical part of its strategy to become an electronic forms services company.

Will Moore be one of the survivors? The early indicators are good. The company recently reversed three years of declining profits, and McKay estimates that

are "a variation on systems integration from the traditional paradigm of forms," McKay says. The company's goal is to bring its expertise to bear in the automation, management and maintenance of forms to help large customers better deal with the daily movement of information. McKay points out that the company can offer a controlled, efficient way for customers to change their forms as well as manage their paper forms inventory.

In an example of the new type of relationship, McKay describes how an insurance industry client has asked Moore to manage an electronic repository of forms in a server on Moore's premises, which the customer will be able to access from its locations across the U.S. The repository will act as a distribution center for companywide forms. From a central location, management will be able to continually top off insurance policy language with the latest legalese and update its policy masks or templates whenever necessary.

The agents will be able to pull down any policy form to the local environment, fill it out and then route it on for printing to one of three locations: the departmental laser printer for low-volume jobs, a

## Forms to function

The issues facing the paper and electronic forms industries will be the subject of the "FROM FORMS TO FUNCTION SYMPOSIUM" April 4 in Edison, N.J. The symposium will cover such topics as electronic forms design and solutions, paper to electronic transformation, managing electronic design and solutions, managing electronic forms, workflow enhancement technologies and imaging systems with forms automation. For more information CONTACT SPECTRUM AT (908) 727-1112, EXT. 9.

some of Moore's traditional base is safe. That base may be sufficient to see the firm through a transition period in which there exists a hybrid environment of both paper and electronic forms. Winners in this market, McKay is betting, will be companies that move smartly into services, a migration that seems to echo the path previously taken by the older computer companies, such as Unisys.

McKay says Moore's salvation lies in providing services based on its knowledge of workflow, which it acquired by designing thousands of forms for clients over the years. By helping customers eliminate some of the costs associated with handling forms — costs that are at least an order of magnitude greater than those of the forms themselves — Moore's executives hope to capture revenue beyond the company's traditional base. Moore intends not only to provide electronic forms software but to serve as a vendor helping clients make their own transitions to an electronic forms environment.

"The smart ones [in the forms industry] can become players in a much vaster world, [one] in which they never participated even though they had the knowledge base," says JetForm Chairman Abe Ostrovsky, referring to the dynamics driving his partnership with Moore.

The kind of services Moore can provide

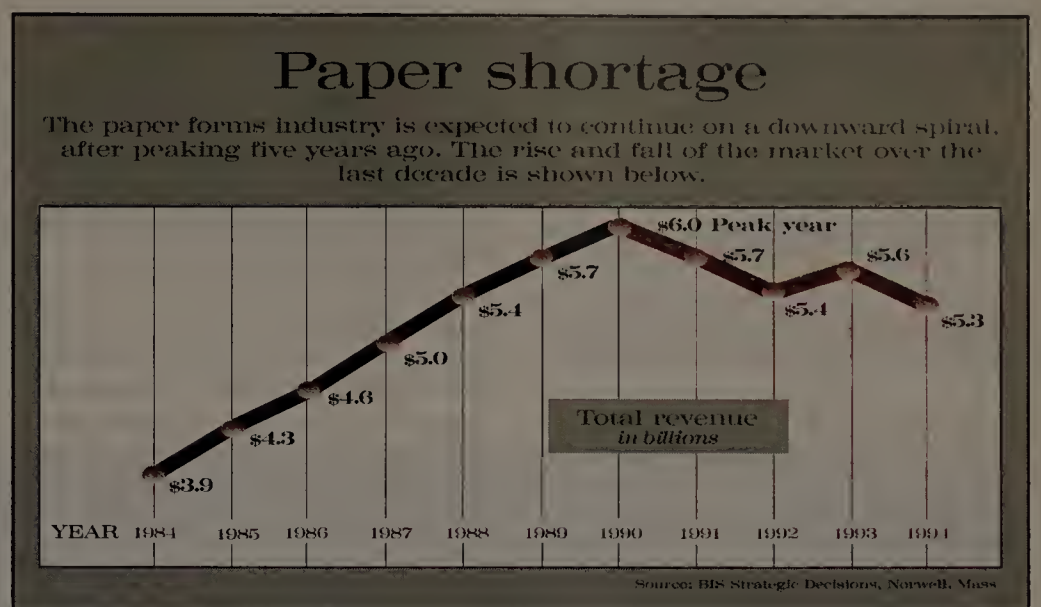
Xerox Corp. DocuTech printer in the production department for midlevel requirements or one of Moore's large printing facilities for long runs.

Moore will also step up its efforts in direct-response marketing (customer databases merged with large-run color printing for direct mail), business communications (high-volume communications between a customer, such as the Internal Revenue Service, and its users, in this case the general public) and data management (for example, providing Multiple Listing Service books for the real estate industry).

"These are growth businesses for us, \$130 million to \$170 million businesses, but they have to have time to ramp up," McKay says.

Overhauling its infrastructure while staying profitable has been a challenge for Moore, which last year took a \$210 million restructuring charge and cut thousands of staffers. However, the company expects to generate substantial new revenue through its recently inked partnership with Electronic Data Systems Corp.

Of course, Moore isn't the only traditional forms company pursuing information technology-based strategies. Data Documents, Inc., a \$200 million forms company in Omaha, shares the sense of urgency about rapidly restructuring to



get into electronic media.

"We recognize that we need to be in this business," says Charles Bauman, vice president of IS at Data Documents. Bauman's recent promotion from director to CIO is one sign of how key IS is to the company's business strategy.

The company has just announced its Odyssey Integrated Service, a package developed in-house that ties together process and forms analysis, workflow simplification, electronic forms composition, database mapping, electronic transmission (including electronic data interchange and print routing), sophisticated customization functions, billing and inventory management. With Odyssey, Data Documents plans to offer a full menu of work-analysis and forms-management capabilities.

"We're going to leapfrog our competition," Bauman says.

Standard Register Co., an \$800 million forms printer in Dayton, Ohio, has several applications up and running that are based on software from F3 Software Corp., an electronic forms company in Ft. Lauderdale, Fla. Standard Register turned in record results in the third quarter of 1994.

However, more formidable competition is coming from outside the industry. Software developers are moving in, particularly several young, lean firms that are achieving phenomenal growth by

proach their markets more directly.

Delrina Technology, Inc. in Toronto, the largest electronic forms company, introduced FormFlow in 1993. It sold roughly \$25 million worth of the forms application creation and routing software in 1994, according to Eric Stevens, Delrina's marketing manager. Stevens says the company is growing at 115% to 120% annually.

Ostrovsky says JetForm is experiencing similarly explosive results. "As mainframes melt into networks, electronic forms are the natural medium to capture and display information in an organized manner," he says.

## Formidable software giants

Competition is also pouring in from the established software companies, which smell scorching market potential and have taken up positions in anticipation. Microsoft Corp. in Redmond, Wash., weighs in with Electronic Forms Designer. Lotus Development Corp. in Cambridge, Mass., offers Forms. WordPerfect, the Novell, Inc. Applications Group in Orem, Utah, offers InForms.

For some large printers, the move to electronic forms may not be enough. Duplex Products, Inc. in Sycamore, Ill., which had been hemorrhaging slowly for several quarters, reported a \$16 million loss for the year ended Oct. 31, 1994. The company recently replaced its entire management team.

Mike Wilson, Duplex's newly appointed vice president of information services, says, "IS will play a vital role in getting the company where it needs to be."

The future looks murky for the paper forms industry. Some of its traditional base will remain, but it will lose large portions of formerly profitable businesses to new competitors from the IS industry. Although the printing companies are attempting to get into information technology-driven businesses, some of their new technology partners are probably going to start looking like competitors once they bulk up a bit.

As in most Darwinian situations, the strong — those with large revenue bases of Fortune 1,000 customers — are the most likely to survive. Clearly, their viability will be enhanced if they zealously embrace information technology. It's headed their way in any event.

Kay is a freelance writer in Wayland, Mass.

## Through the roof

The electronic forms industry is on the fast track to success. Revenue and growth predictions range from:

### LOW ESTIMATE:

Growth of 50% through 1998

Source: Punk, Ziegel & Kneill, New York

Revenue \$36M in 1994

### HIGH ESTIMATE:

Growth of 75% through 1998

Source: BIS Strategic Decisions, Norwell, Mass.

Revenue \$52M in 1994

specializing in electronic forms. These smaller developers may find that partnering with the established forms companies is convenient for the moment, but over the long haul they may want to ap-



## Commentary

Allan E. Alter

# Answers lie with the customer



When it comes to washing away old assumptions and erroneous thinking, there's no better cleanser than a good system for collecting customer information. Just ask Whirlpool.

Whirlpool's Customer Quality Information System (CQIS), which collects data from warranty claims and Whirlpool's consumer hot line, has been up and running since July 1993. And the

product designers and manufacturing engineers who use the system have learned something surprising: Even after more than 80 years in the major appliance business and zillions of dollars sacrificed at the altar of market research, they can sometimes make dumb-as-dirt design decisions.

### Coming clean

Late last year, Jack McGrath, the national director of Whirlpool's Consumer Assistance Center in Benton Harbor, Mich., aired some dirty laundry at a conference on product development and concurrent engineering sponsored by the Management Roundtable.

For example:

You'd think Whirlpool's designers would know that people lose their keys sometimes. But for more than 15 years, Whirlpool's engineers thought a removable key was the best way to childproof their kitchen trash compactor. Trouble is, moms and dads were calling Whirlpool to get replacements for the keys they lost. CQIS helped Whirlpool discover the scope of the problem, and the key was replaced with a nonremovable

child safety lock.

Don't you hate pitchers that don't have spouts? Only a sponge manufacturer could love that omission. Well for years, Whirlpool designers didn't put spouts on KitchenAid blenders. The design wasn't changed until CQIS revealed that consumers were having trouble pouring thick liquids like cake batter out of those blenders.

Whirlpool also found that in its quest to win more housing contractors as customers, it was losing favor with new home owners. In order to lower prices on the line of appliances it sold to contractors, Whirlpool eliminated popular features.

For instance, the company began selling one-speed-only washers to contractors. Big mistake because the cleaning of different clothes requires different washing speeds.

And how could any dishwasher manufacturer neglect to include a rinse aid dispenser in its machines? Those rinse

aids are needed to keep silverware and glasses from spotting. But when happy home owners loaded their KitchenAid dishwashers for the first time, they found a hole with a plug instead of a rinse aid dispenser.

Thanks to CQIS, McGrath says, Whirlpool's product specialists quickly found out that home owners were raising the roof over these one-speed washers and dispenserless dishwashers. Within months, the company stopped selling those models to contractors.

The moral is simple: It's hard to underestimate the value of a first-class system

for pulling together customer feedback. It's probably one of the most valuable projects an IS team can undertake. If one of the oldest and fastest-growing home appliance companies in the world can discover it was doing a poor job listening to customers, so can your company.

Alter is a *Computerworld* senior editor, management.

Thanks to its Customer Quality Information System, Whirlpool was able to discover customer objections to features in its appliances.

## Executive

### Track

**AT&T Corp.** in New York has announced the appointment of **John T. McGee**, 59, as senior vice president and chief information officer of the AT&T Universal Card Services credit-card subsidiary. He replaces **Jim Kutssch**, 44, who held the position on an interim basis and is being reassigned with the credit-card unit's information technology services group. Prior to the appointment, McGee was a consultant at Wellcome PIC in London. Prior to that he was vice president of corporate information technology at Glaxo, Inc. in Durham, N.C.

**Texas Instruments, Inc.** in Dallas has announced the appointment of **Jodie N. Ray** as CIO and manager of the company's information systems and services division, which oversees IS for the company's worldwide operations. Ray replaces **Robert McLendon**, who recently was appointed president of TI's software business.



**Equitable Life Assurance Society of the United States** in New York, a subsidiary of The Equitable Cos., has announced the appointment of **Leon**

**B. Billis**, 48, as senior vice president and CIO. Billis was formerly a vice president.

**Entex Information Services** in Rye Brook, N.Y., has announced the appointment of **Lynn S. Wilson**, 50, as vice president of information technology and CIO. He will be responsible for directing the company's information technology strat-

egy and overseeing staff support at Entex headquarters and its 45 sales offices nationwide. Prior to the appointment, Wilson was corporate program officer at Ascom Timeplex in Woodcliff, N.J., and before that he was corporate vice president of information management at Scientific Atlanta.

**Business Wire**, a San Francisco-based electronic distributor of news and information, has announced the appointment of **Steve Messick** to the post of systems manager. Formerly an independent consultant, Messick will manage all of the company's computer and network operations.

**Summit Bank** in Summit, N.J., has announced the promotion of **Robert S. Soloway** to vice president of technology.



**Alaska Airlines** in Seattle has announced the appointment of **Robert M. Reeder** as staff vice president of information and communications services. He

will report to **Raymond J. Vecchi**, chairman and chief executive officer. Reeder will be responsible for computer systems, data processing applications, communications systems and the printing and distribution of internal publications and manuals for the airline.

Previously, Reeder was director of applications development, responsible for managing the design and development of internal data processing systems supporting the information processing needs of various departments. Prior to that, Reeder held a variety of data processing positions with **Deere & Co.** in Illinois, including manager of customer services at **John Deere Information Systems**.

**TRW Information Systems & Services** in Orange, Calif., has announced the appointment of **Ann M. Delligatta** as vice president and general manager of TRW Information Technology Services. She



will be responsible for software systems development and programming, quality assurance and integration testing, and telecommunications systems management. Prior to the appointment, Delligatta was vice president of advanced technology projects at TRW. She has more than 20 years of experience in data center operations, systems and software development and IS management.

**The Walter A. Haas School of Business at the University of California** at Berkeley has announced the appointment of **James A. Spitze** as executive director of the school's new Center for Information Technology and Management. Spitze currently serves as senior vice president and CIO at **Tri Valley Growers**, California's largest agricultural cooperative, and as the managing partner of **The Systems Consulting Consortium, Inc.**, a regional information technology management consulting firm. He has previously served as CIO at **American President Lines** and **Xerox Data Systems**.

**United States Bronze Powders, Inc.** in Flemington, N.J., has announced the appointment of **Alex Williams** as MIS director. He succeeds **Ed Fabula**.

**The Healthcare Information and Management Systems Society (HIMSS)** has announced the election of new officers for 1995. Elected president was **Richard C. Howe**, associate vice president of IS at the **University of Cincinnati**

**Medical Center**. Elected vice president was **Richard Reynolds**, director of management engineering and regional services at the **University of Wisconsin Hospital and Clinics** in Madison. The current president and vice president, **Nancy Aldrich** and **Charles Platt**, will remain in office until July 1.

In addition to the elections of **Howe** and **Reynolds**, four appointments to the HIMSS board of directors were announced, also effective July 1. They include (clinical systems) **Cynthia D. Spurr**, program manager, nursing systems, at **Brigham & Women's Hospital** in Boston; (IS) **Deborah L. Krau**, CIO/vice president of information services at **Lahey Health Care Network** in Burlington, Mass.; (management engineering) **Cheryl A. Turner**, director, decision support, at **Northeast Georgia Health Services** in Gainesville, Ga.; and (telecommunications) **Ronald S. Contrado**, president of **HOMISCO** in Melrose, Mass.

HIMSS also announced several member appointments. **Keith A. Barnett**, formerly assistant director of IS at **Deaconess Hospital** in Evansville, Ind., has been appointed senior systems analyst at **St. Mary's Medical Center**, also in Evansville. **Richard E. Cowan**, formerly vice president of information services and CIO at **St. John's Regional Medical Center** in Joplin, Mo., has been appointed to the same position at **Lakeland Regional Medical Center** in Lakeland, Fla.

**Alfred M. Dees**, formerly CIO at the **University of Minnesota Hospital and Clinic** in Minneapolis, has been appointed director of information services at **University Hospital Consortium** in Oak Brook, Ill. **Robert L. Erndt Jr.**, formerly vice president of information resources at **Mount Carmel Health** in Columbus, Ohio, has been appointed CIO at **Alexian Brothers Health System** in Elk Grove Village, Ill.



# Calendar

## MARCH 5-11

**The Sixth Annual Expanded International Help Desk Conference.** San Francisco, March 5-8 — Seven conference forums examine key issues, including planning, implementing and supporting a help desk or related support service. Contact: Help Desk Institute, Colorado Springs, Colo. (719) 531-5138.

**The Workgroup Solutions Conference and Expo.** Boston, March 5-8 — A guided tour of groupware, including improved electronic meeting facilitation techniques; maximizing return on investment; global collaboration; groupware for heterogeneous architectures; automating field personnel; developing workflow applications; integrating groupware with legacy systems; and administration and security issues. Contact: David Coleman, GroupWare '95, San Francisco, Calif. (415) 282-9192.

**Convex User Group Worldwide Conference.** Dallas, March 5-9 — Contact: Mary Kay Havens, Convex Computer Corp., Richardson, Texas (214) 497-4584.

**Connectathon '95.** San Jose, Calif., March 6-17 — An opportunity for vendors of networking software and systems to test the interoperability of their new products and Internet protocols. Contact: Carolyn Hayes, Hayes Event Management, LaPorte, Ind. (219) 324-7313.

## MARCH 12-18

**15th Annual Use of Clinical Information Systems Conference.** Snowbird, Utah, March 12-15 — Contact: Association for Applied Clinical Information Systems, Ann Arbor, Mich. (313) 971-6557.

**Uniforum '95.** Dallas, March 12-16 — Keynote speakers include Ed McCracken, chief executive officer, Silicon Graphics, Inc.; Robert Frankenberg, CEO, Novell, Inc.; and Bruce Tognazzini, engineer, SunSoft, Inc. Contact: The Interface Group, Needham, Mass. (617) 449-6600.

**Managing the Information Resource: Information Technology and the New Value Equation.** Los Angeles, March 12-17 — Forum focuses on frameworks, techniques and skills necessary to align information technology with the needs of business. Contact: Marcie Desmond, Cambridge Technology Partners, Cambridge, Mass. (617) 374-8702.

**13th Annual National Conference on Ada Technology.** Valley Forge, Pa., March 13-16 — Contact: Rosenberg & Risinger, Culver City, Calif. (310) 397-6338.

**Toward an Electronic Patient Record '95.** Orlando, Fla., March 14-19 — Eleventh international symposium on the creation of electronic health record systems and global conference on patient cards. Keynote presentations include "Cutting the Hype: Real Life Demonstrations of Today's Capabilities" and "Focus on the Patient: Effects of Changing Technology on the Patient." Contact: Medical Records Institute, Newton, Mass. (617) 964-3923.

## MARCH 19-25

**National Fiduciary and Securities Operations Conference.** Orlando, Fla., March 19-22. — Features 30 concurrent sessions divided into five categories: management, securities, products and services, technology and global custody. Contact:

American Bankers Association, Washington, D.C. (202) 663-5000.

**Life Office Management Association Systems Forum and Exhibit 1995.** Orlando, Fla. March 19-22 — Life insurance industry conference features more than 800 management and technical sessions in areas such as data security, client/server and LANs. Contact: Guide International, Chicago, Ill. (312) 245-1599.

**Object World.** Boston, March 19-23 — Contact:

IDG World Expo, Framingham, Mass. (508) 879-6700.

## MARCH 26-APRIL 1

**National Automated Clearing House Association 1995: Electronic Payments, Business Solutions.** New Orleans, March 26-29 — Conference focuses on radical changes in the way institutions exchange information and payments. Contact: National Automated Clearing House Association, Herndon, Va. (703) 742-9190.

The advertisement is a large, dark rectangular block. At the top, a large, detailed illustration of a fish, possibly a snapper or similar, is shown swimming towards the left. Below the fish, there are four smaller, stylized illustrations arranged horizontally: a small figure, a mechanical device, a bomb, and a yellow flag. At the bottom of the advertisement, there is a block of text in a serif font, which is partially obscured by the fish and the other illustrations. The text appears to be a promotional message for Data General, mentioning 'Data General' and 'getting a job done'. The overall aesthetic is professional and technical.



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 1995

# Objects In

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Learn from leaders from high tech, business and government and find out how successful software strategies stimulate economic development. Hear all about the impact of software components on the bottom line. Attend our one-day Executive Forum, "Software as a Corporate Asset," on Monday, March 20. Join us as we discuss issues surrounding software's resource and asset management, and its consequences in shaping a mature, layered software industry. Plus, Professor Michael Cusumano will introduce his forthcoming book, *Microsoft Secrets: How the World's Most Powerful Company Creates Technology, Reshapes Markets, and Manages People.*

	Objects in Business	Technology of Objects	Distributed Computing With Objects	Software Developers
<b>Sunday, March 19 TUTORIAL PROGRAM</b>				
9:00 a.m. - 5:00 p.m.		T1 Introduction to Object-Oriented Technology	T2 Understanding Distributed Object Computing	T3 Design Patterns: Elements of Reusable Object-Oriented Software
9:00 a.m. - 12:30 p.m.	T4 An Executive Overview to Object Technology	T5 OLE 2.0 Primer		
1:30 p.m. - 5:00 p.m.	T6 Objects in Business	T7 OpenDoc Primer		
<b>Monday, March 20 TUTORIAL PROGRAM</b>				
9:00 a.m. - 5:00 p.m.	T8 Object Models: Strategies, Patterns & Applications T9 Object-Oriented Business Engineering	T10 Reuse - Taking the Theory Into Practice	T11 Introduction to Client/Server Programming Using CORBA	T12 Introduction to Smalltalk
9:00 a.m. - 6:30 p.m.	Executive Forum - Software as a Corporate Asset			
9:00 a.m. - 12:30 p.m.		T13 Evaluating Object Database Management Systems for Production Applications		
1:30 p.m. - 5:00 p.m.			T14 Distributed Computing with Legacy Mainframes	T15 Advanced Object Modeling and Design for C++
<b>Tuesday, March 21 CONFERENCE PROGRAM</b>				
7:30 a.m. - 8:15 a.m.	Introduction to Object Technology*			
8:30 a.m. - 10:00 a.m.	• Introduction to Business Objects • Strategic Issues in Transition Management	• Component Based Development • A Developers Overview of Object Technology Products & Services	• Getting Ready for Distributed Computing With Objects: The Next Paradigm Shift • Managing Distributed Object Development Projects • Distributed C++ Applications & Services	• Object-Oriented Languages Compared • Setting up a Smalltalk Shop
10:15 a.m. - 11:30 a.m.	Keynote - Objects: Not Just for Programmers Anymore*			
11:00 a.m. - 6:00 p.m.	EXHIBITS			
12:45 p.m. - 1:30 p.m.	Industries in Action - Health Care*			
2:00 p.m. - 3:30 p.m.	• Object Technology & BPR: Joining Forces • A Manager's Intro to Object Technology Products & Services • Building the Business Case for Object Technology	• Managing Object-Oriented Projects: Scaling Up from Small to Large • Reuse & Extensibility	• The Future of OLP • Success Stories in Distributed Object Computing	• Comparison of C++ & Smalltalk for Use with Object Databases • Monif, Widgets, Object Applications & Design Development
<b>Wednesday, March 22 CONFERENCE PROGRAM</b>				
7:30 a.m. - 8:15 a.m.	OMG: Building the Object Technology Infrastructure*			
8:30 a.m. - 10:00 a.m.	• Planning for Reuse • Thinking in Objects	• Object Metrics: Current Practices • Implementing Persistent Objects • Object-Oriented Software Engineering	• Bridging Client/Server & Object-Oriented Computing • Choosing a CORBA Implementation	• Testing OO Systems & The Classes That Compose Them • Designing Control Flow Mechanisms for Object Programs
10:15 a.m. - 11:30 a.m.	Keynote - Business Engineering with Object Technology*			
11:00 a.m. - 6:00 p.m.	EXHIBITS			
12:45 p.m. - 1:30 p.m.	Industries in Action - Financial Services*			
2:00 p.m. - 3:30 p.m.	• The Object Technology Dream Team • Survey of Object Technology Mainstream Business Applications	• Managing Quality for Object-Oriented Software • Comparing OOA&D Methods • Patterns	• Planning for Large-Scale DOC Environments • Using CORBA to Integrate Legacy Systems	• Case Studies: Detecting Software Development Failures & Recovering • Automating Associations in C++
<b>Thursday, March 23 CONFERENCE PROGRAM</b>				
8:00 a.m. - 8:45 a.m.	CORBA & COSS Up Close*			
9:00 a.m. - 10:30 a.m.	Keynote - Theory is Great, But Does it Get the Job Done?*			
10:00 a.m. - 2:00 p.m.	EXHIBITS			
12:45 p.m. - 1:30 p.m.	Industries in Action - Telecom*			
2:00 p.m. - 3:30 p.m.	• Business Object Management (BOM) • Object Technology & the Mainframe	• Building & Working with Reusable Software • Designing Responsible Objects	• Case Study: Xerox's Migration to Distributed Object Technology • A Comparison: SOM and COM • Distributed Computing with Component-Ware	• Using CORBA Facilities for Wrapping Applications • From OOA to C++ - The Missing Link
3:45 p.m. - 5:15 p.m.	• Applying the Object-Oriented Software Development Life Cycle • User Experiences with Object-Oriented Project Management	• Using ODBMSs in Production Applications • A Case Study in Large Scale Object Technology Development: Managing Complexity • Business Process Reengineering with Object Technology	• User Experiences in Distributed Computing • Reuse Management of Complex Distributed Computing Components	• Incorporating CORBA Into C++ Applications • Patterns & Frameworks: Elements of Reusable OO Software

\*Open To All Attendees

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# THE REAL WORLD 1995

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### *Objects: Not Just for Programmers Anymore.*

Keynote Speaker: Steven A. Mills, General Manager, IBM Software Solutions



### *Business Engineering with Object Technology.*

Keynote Speaker: David A. Taylor, Ph.D., President, Enterprise Engines Inc.



### *Theory is Great, But Does it Get the Job Done?*

Keynote Moderator: Jon Hopkins, President, Palladio Software Corp.

Keynote Panelists: Grady Booch, Chief Scientist, Rational Software Corp.; Ivar Jacobson, Ph.D., Vice President, Technology, Objectory AB; Stephen J. Mellor, Vice President and Founder, Project Technology, Inc.

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Fill out sections A-I completely. Select from Package A, B, C, D or E. The last date to register in advance is March 15, 1995. Registrations made after this date must be made at the show.

A. Name \_\_\_\_\_  
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Zip/Postal Code \_\_\_\_\_ Country \_\_\_\_\_  
Phone \_\_\_\_\_  
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### B. Your Business or Profession

- (Circle one):
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  2. Consultant
  3. Education
  4. Engineering
  5. Government
  6. Information Service
  7. Insurance/Banking/Financial
  8. Manufacturing
  9. Professional Service
  10. Retailing
  11. Software Developer
  12. Wholesaling/Distribution
  13. Other

### C. Your Title

14. Chief Information Officer
15. Consultant
16. EDP System/Program/Planning
17. Software Engineer
18. Engineer (other than software)
19. General Management
20. Information Systems Manager
21. Manager, Systems Architecture
22. Manager, Systems Development

23. Marketing/Sales
24. Member of Technical Staff
25. MIS/DP Manager
26. Programming Supervisor
27. Software Development Manager
28. Technology Planning Manager
29. Project Manager
30. Technical Manager
31. Software Developer
32. Development Manager
33. Researcher
34. Programmer
35. Other

### D. Number of Employees in Your Company:

36. Under 100
37. 100-499
38. 500-999
39. 1000-4999
40. Over 5000

### E. Which Functions Do You Perform in Regard to Object Technology?

41. Final Decision Maker
42. Specify
43. Recommend
44. Approve

45. Develop/Use
46. Resell
47. Other

### F. Which of the Following Object-Oriented Products or Services Are You Interested In?

48. C++
49. Smalltalk
50. Eiffel
51. Frameworks
52. Analysis and Design Tools
53. Visual Programming
54. Portable GUI Builders
55. Development Environments
56. Distributed Management Facility
57. Class Libraries
58. None
59. Databases

### G. Internet/E-Mail Address

- ☐ Check here if you are disabled and require special services. Attach a written description of your needs.

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### I. Package Options

If you choose Conference Package A, B, or D, you must indicate the tutorial reference numbers (see matrix at left) for your registration to be processed. Tutorials are on a first-come, first-served basis, and many sell out early.

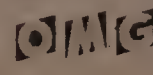
Check One:	Tutorials	Through Feb. 17	After Feb. 17	On-site Mar. 19-23
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1 Full-Day Tutorial Sunday and	_____			
1 Full-Day Tutorial Monday OR	_____			
2 Half-Day Tutorials Sunday	_____			
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<input type="checkbox"/> <b>PACKAGE C - Three-Day Package:</b>		\$695	\$795	\$895
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<input type="checkbox"/> <b>PACKAGE D - One-Day Tutorial:</b>		\$295	\$350	\$425
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or Monday OR 2 Half-Day	_____			
Tutorials, Sunday or Monday	_____			
PLUS Bonus Sessions, Keynotes, Exhibits, Special Events, and the World of Objects CD				
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UPDATE No 4







# Re-engineering the Workplace

## WEAK LINKS

Ironically, information systems remains one of re-engineering's biggest bugaboos.

Reason: Many technology groups cling to old ways. How much change is enough?

### By Joseph Maglitta

**E**ric Christensen didn't start out to re-engineer information systems at Ameritech Corp.'s 2,500-person technology unit. "It was more a 52-card pickup of the whole business," says Christensen, director of consulting at the Chicago-based telecommunications giant. One IS change just led to another.

But Joseph Cleveland *did* start out to totally revamp IS at Martin Marietta Corp. in Bethesda, Md., following the company's April 1993 merger with General Electric Aerospace. In 18 months as vice president and general manager of internal IS, Cleveland trimmed and transformed the company's 1,500-person operation.

Each took a different path, but today, both belong to the same minority: Top executives who have tackled widespread business process re-engineering of technology operations.

Huh? Isn't technology one of business process re-engineering's pillars? Wasn't IS supposed to help drive wide-

#### What's the toughest part of re-engineering?

(Percent finding it very or extremely difficult)

- 54%** GETTING INFORMATION SYSTEMS AND INFRASTRUCTURE IN PLACE
- 53%** DEALING WITH FEAR AND ANXIETY IN THE ORGANIZATION
- 46%** MANAGING RESISTANCE FROM KEY MANAGERS
- 42%** CHANGING JOB FUNCTIONS, CAREER PATHS, RECRUITMENT OR TRAINING
- 42%** DESIGNING NEW BUSINESS PROCESSES

Source: CSC Index, Inc., Cambridge, Mass.; Survey of 497 North American companies

scale, radical corporate redesign? In their 1993 best-seller, *Re-engineering the Corporation*, Michael Hammer and James Champy even declare: "A company that cannot change the way it thinks about information technology cannot re-engineer."

Yet several years into The Great Re-engineering Rush, many corporate technology groups remain unwilling, unable — and more of-

ten than many care to admit — uninvited participants in radical reinvention. And in fewer areas has the zeal to rethink and raze daily business been more tepid than in IS's own backyard.

Despite the wave of reorganization now taking place in thousands of technology groups across the country, truly radical change in how technology and services are delivered is still rare.

"IS organizations are working very hard to rearchitect their role," notes Mark Hess, vice president of information technology management research at Gartner Group, Inc. in Stamford, Conn. "When I ask a couple of thousand



people at a conference session how many have reorganized in the past year, 90% raise their hands."

Yet Hess and others say many such efforts to date have merely redrawn organizational lines without rethinking mission, values, staffing, culture, business practices or processes.

Jeanne Ross, a research associate at MIT's Center for Information Systems Research in Cambridge, Mass., agrees that change has been modest.

Ross and colleagues from the University of Minnesota and Southern Methodist University have just finished a study of IS changes at 50 leading U.S. organizations. One conclusion? "People are reinventing rather than re-engineering," Ross says.

#### Limited rethinking

Other recent studies and interviews with industry observers and IS leaders paint a similar picture. While client/server and object technologies have sparked new ways of developing software, few medium-size and large U.S. corporations have engaged in wider-looking, radical, fundamental rethinking.

Consider a major survey conducted last summer by CSC Index, Inc. The Cambridge, Mass., consultancy asked 497 large North American companies which processes, such as customer service or order fulfillment, were targeted for re-engineering.

Only 6% of respondents said they were reworking IS. (In Europe, the figure was 4%.) A smaller study by Business Research Group in Newton, Mass., placed the number at 35% (see chart at right). Some, however, say that figure seems high.

True, many IS groups have adopted elements of business process re-engineering — notably cross-functional teams and peer reviews. Many have also begun using rapid prototyping, joint application development and other new software development techniques to support corporate re-engineering. And analysts say it's likely

that more groups have taken the plunge since the studies were conducted.

But there's no question that companies such as Ameritech and Martin Marietta — which have completely reworked IS practices and structures to cut waste, delivery time and cost and to reduce defects while focusing on the corporation's customer — remain relatively rare. Most action so far has been by IS leaders such as Bell Atlantic Corp., Aetna Life and Casualty Co., Owens-Corning and Merrill Lynch & Co.

"Many CIOs are still reactive and waiting," says William Stoddard, director of Andersen Consulting's re-engineering practice in Chicago. "Too many are kind of sitting back and driving the bus from the backseat."

Some observers worry. They say clinging to traditional practices and structures could mean big trouble for IS groups and their cor-

kills corporate re-engineering efforts.

Hammer, president of Hammer and Co., a Cambridge, Mass., consultancy, warns that IS groups must create the right environment for change by assembling network, electronic mail, shared databases and other enabling technology. If not, he says they'll be replaced by outsourcers or consultants and absorbed into business units or fired even more frequently than they are today.

"If IS isn't going to be in the re-engineering business, it's not going to be in any business," Hammer declares.

While that may sound like consultant

hyperbole, it's not too great an exaggeration, Cleveland says. "It's a matter of survival."

#### A perfect match

What's the problem? IS folks seem perfect for business process re-engineering. In theory, their systems-oriented analytical skills would be a boon for any re-engineering team or planning effort.

Business process re-engineering, in turn, could be a boon for IS. Research by Ernst & Young found that redesigning processes, skills and infrastructures can produce a fivefold or tenfold boost in IS per-

formance. And re-engineering in your own backyard, as Ernst & Young consultant Vaughn Merlyn has often noted, can be good practice for larger roles in corporate re-engineering efforts.

Yet numerous obstacles conspire against would-be re-engineers in IS.

Many groups remain too mired in application development, maintenance and legacy applications to do much else. Even those who outsource may be wrapped up in supporting other re-engineering projects.

Charles L. Feyt, who heads Deloitte & Touche's financial services industry re-engineering practice, asks, "How do you deal with other patients while you're operating on yourself? It's extremely difficult to do."

As a result, many are simply too busy and stretched too thin to think seriously about revamping analysis/design, consultation, infrastructure, architecture, technical support, disaster recovery, training and other functions.

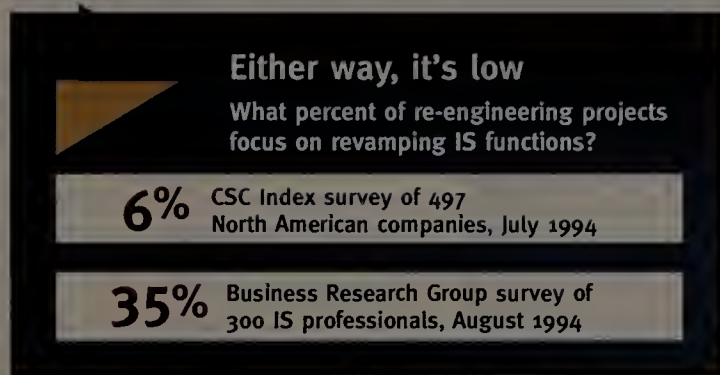
"IS groups are the shoemaker's kids," Stoddard says. Christensen concurs, saying, "It's a matter of being so focused on solving other people's problems that you don't have time to look at your own."

But few technology groups seem eager to remake themselves. "IS kind of prides itself on being a change agent for others," observes

Re-engineering, page 96

**"Customers are much more willing to hear our story about doing business process re-engineering for them if we do it for ourselves."**

Joseph Cleveland  
Martin Marietta



porations. "You can't change just one piece and have any affect," Hess says.

The CSC Index survey, the most comprehensive study of re-engineering to date, found that technology rollout is already seen as the toughest part of business process re-engineering (see chart page 96).

As second-wave re-engineering projects roar ahead, technology introduction threatens to further restrain the pace of business change. If that occurs, IS could become an even weaker link that stifles innovation and, ultimately,

KATHERINE LAMBERT





## Re-engineering

CONTINUED FROM PAGE 95

serves Raymond Caron, chief information officer of Cigna Corp. in Philadelphia. "But it's a hard organization in and of itself to change."

Caron, a pioneer who began re-engineering IS at Cigna in 1988, also notes that not every CIO can stomach business process re-engineering. "You're really opening to self-examination," he says. "It's not always pleasant."

Hardly. Technologists aren't immune to layoff fears, sabotage and "program-of-the-month" cynicism that universally greet re-engineering.

"People just stab you in the back," complains one technology director who recently tried to re-engineer his firm's systems development process while shifting to client/server. Staffers balked. "There's a tremendous push back from MIS," the manager laments. "They know that if this works you won't need 37 development people."

### Support is vital

Both Cleveland and Christensen say getting IS professionals and managers on board can be tough. Says Cleveland: "You have to work doubly hard on picking the right leadership and making sure that leaders walk the talk."

"It's a never-ending battle," Christensen says.

Because it's difficult and lengthy, internal IS re-engineering requires prolonged top-level support, says John Wyatt, president and chief executive officer of James Martin and Co., a re-engineering consultancy.

Interest can be tough to maintain, he says. "The logical end to the horror story is outsourcing."

Lack of vision is often a problem, too. University of Colorado professor Daniel J. Couger says re-engineering in IS is often doomed by a lack of creativity.

Technologists, he says, "have lots of tools that talk about how you analyze a process. But they only advocate one tool for redesigning a process — brainstorming, the least effective of all the creative tools."

Couger, author of *Creative Problem Solving and Opportunity Finding*, published by Boyd and Fraser, says in the long run, money spent on expensive consultants would be better spent on teaching IS staffers creative tools and techniques.

And sometimes it just makes more sense to leave things alone. Take Motorola, Inc.'s Transmission Products Division in Mansfield, Mass.

In mid-1994, division leaders wanted to speed up the 100 developers who create embedded software for the company's V.34 and 3500 modems. They swapped a decade-old VAX for a Hewlett-Packard Co. HP 9000 and Sun Microsystems, Inc. servers running HP's Softbench but decided to

stop change there.

"We did make a conscious decision not to organize around process," says Jed Johnson, director of software engineering. "We felt that focusing on process would take people's eyes off what they were really meant to be doing, which is getting products out the door and meeting marketing demands."

And not every company needs to re-engineer IS. That's especially true of lean firms that depend heavily on outsourcing.

"When we do a development project, we don't have to fight the weight and structure of the information technology department," says Kevin Godsey, vice president of IS at Kirby Corp. The \$400 million marine transportation firm in Houston employs just nine IS staffers. When projects arise, "we just prepare a [request for proposals] and contact the consulting group."

Flexibility isn't cheap, however: Kirby just finished a \$1.2 million client/server development project with Houston consultancy BSG. But Godsey says he thinks it's worth it. "We have no huge infrastructure to maintain. And we have the flexibility to team the resources to the project at hand."

### Shifting focus

In fairness, not all blame lies with IS. Analysts note that most companies begin re-engineering where it makes the most economic sense. Until now, that usually meant



Talk of "Centers of Excellence," a related notion, buzzed around the Information Management Forum conference in San Diego last month.

Moreover, a new SIM-sponsored study by the University of Minnesota's Management Information Research Center shows signs of serious stirring.

Some 200 CIOs were asked to list the Top 10 most critical issues for the next three to five years. The top choices were "building a responsive information technology infrastructure" and "facilitating and managing business process re-engineering."

As at Ameritech, corporate directives may be the catalyst. In April, The NutraSweet Co. in Deerfield, Ill., plans to begin a "pretty significant ramping up" of an information technology redesign program, says information technology director Pat Moroney. The move will be part of a corporatewide re-engineering initiative by parent Monsanto Co., he says.

### Spotlight on processes

Other companies taking such paths may see their future in Ameritech and Martin Marietta. Both firms organized around key processes, such as providing infrastructure, resolving systems problems and managing systems changes, instead of around departments, platforms or functions.

Martin Marietta's virtual organization revolves around four centers of excellence: business systems applications, design and architecture, computing environment and services and process change management. Corporate design and architecture are centrally managed, and quarterly and annual process reviews troubleshoot problems and devise new ideas.

Ameritech also created a 15-member "process innovation team" to drive further

**"It's a matter of being so focused on solving other people's problems that you don't have time to look at your own."**

**Eric Christensen**  
Ameritech

### Toughest technology problems

(Percent finding it very or extremely difficult)

- 45%** ENSURING THAT INFORMATION SYSTEMS ARE DELIVERED ACCORDING TO PLAN
- 39%** UNDERSTANDING SCOPE AND MEETING TRAINING NEEDS OF TECHNOLOGY USERS
- 34%** UNDERSTANDING TECHNOLOGY IMPLICATIONS OF RE-ENGINEERED PROCESS
- 34%** ENSURING THAT IS ORGANIZATION HAS SKILLS NECESSARY TO SUPPORT RE-ENGINEERING
- 28%** ENSURING THAT THE TECHNOLOGY CALLED FOR IN THE INITIATIVE IS VIABLE

Source: CSC Index, Inc., Cambridge, Mass.; Survey of 497 North American companies

key customer-contact areas, notably production, service and order processing. In many cases, IS has simply not been a high priority.

That may be changing, however. "Re-engineering IS" has started showing up on IS conference programs. Last fall's Society for Information Management (SIM) national meeting featured several sessions that addressed the topic. Gartner Group's annual symposium last fall also delved deeply into the issue, and ditto for the upcoming CIO Perspectives conference next month.

**SPECIAL  
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## Re-engineering the Workplace

improvement. Both of the companies stress individual empowerment, cross-functional teams and simplified job descriptions.

While painful, companies say radical re-engineering in IS can yield dramatic payoffs: In less than a year, Martin Marietta says it has slashed IS costs by \$70 million and trimmed its head count by 900. Technology transfer and credibility have improved too, according to Cleveland.

"We can now perpetuate the best information technology practices and best common business practices across the corporation's 24 business units much faster than ever before," Cleveland says. Plus, "customers are much more willing to hear our story about doing business process re-engineering for them if we do it for ourselves."

And IS staffers like the broader career opportunities, he adds.

### Sold on re-engineering

Ameritech says it's too soon to measure all benefits. One early gain: A reduction in the time needed to set up a technology infrastructure for a new user shrank from one or two weeks to three days, Christensen says.

Cigna, however, is sold. The insurer

re-engineering elsewhere in the corporation may well prove true in IS: Namely, piece-by-piece redesign is better than no redesign at all.

"People think radically," Ross says, "but they're only able to function in incremental changes."

"There's a danger to the Nike mentality of 'Just do it,'" says Frank Gens, vice president of International Data Corp. in Framingham, Mass. A self-described re-engineering skeptic, Gens says in some

cases, carefully chosen prospects can be nearly as effective as widespread radical revamps.

In fact, not every IS department starts off consciously deciding to re-engineer. Instead, many say they layer improvement upon improvement — whether that's closer to total quality management is academic.

"There's a continuum of change," Gens says. "Say you consolidate half a dozen help lines into one 800-number or

split the development group into new development and maintenance — these incremental things can be every bit as important as 're-engineering.'"

Ultimately, Hess predicts, technology groups will adopt as much business process re-engineering as they need. "IS people may be slow, but they are not stupid," he says.

Maglitta is *Computerworld's* senior editor, corporate strategies.

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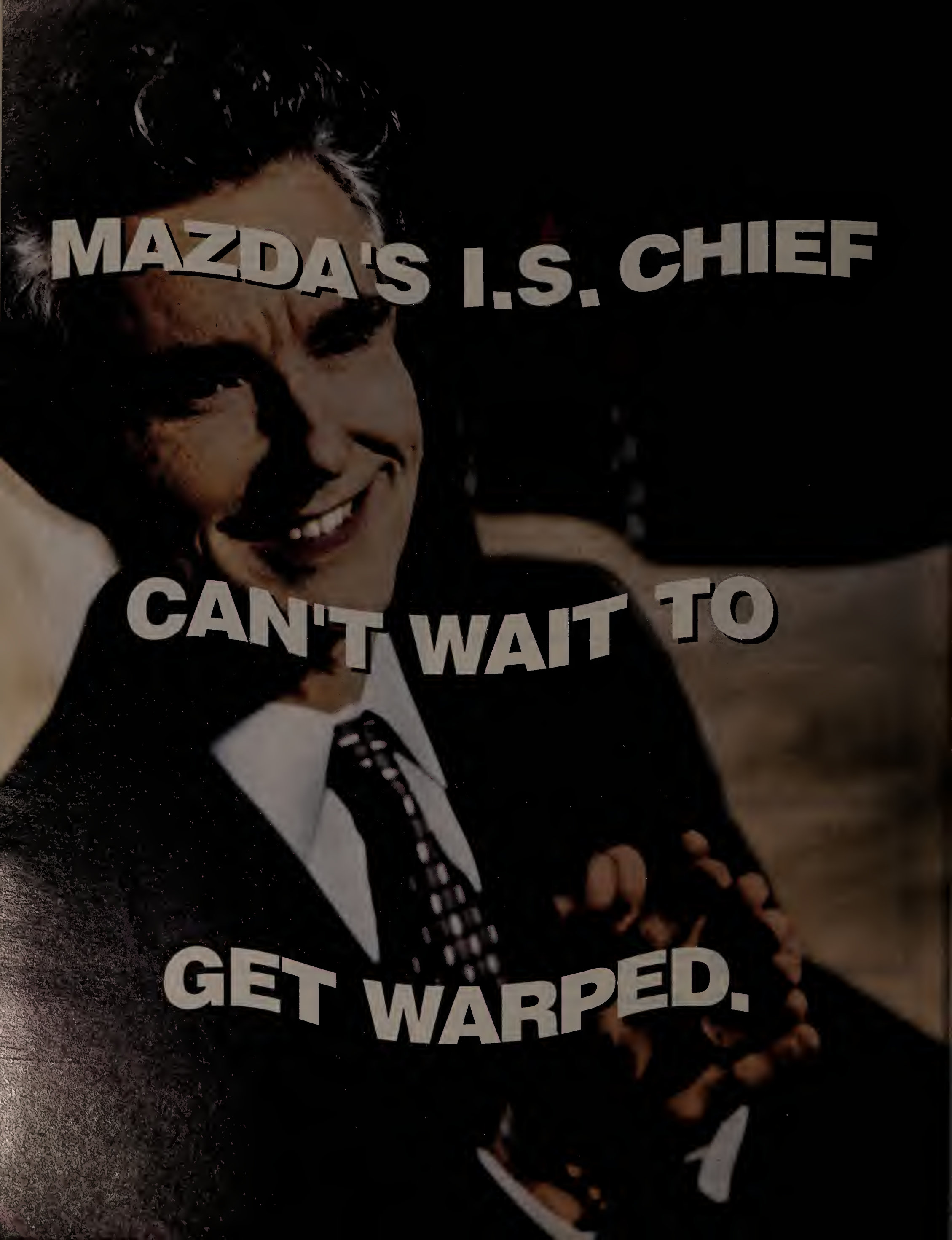
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claims early efforts at its Cigna RE unit, among other gains, slashed IS operating costs 40%, killed a yearlong applications backlog, lowered error rates and trimmed the number of job descriptions from 27 to a handful.

Caron says the 3,000-member IS group isn't through yet. It is now entering a third phase doing widespread process redesign in data centers, services maintenance, operations and application development.

Even if you're not ready for massive change, take heart. What's true for re-en-





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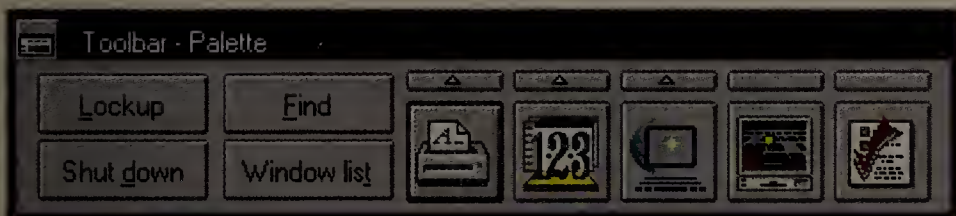
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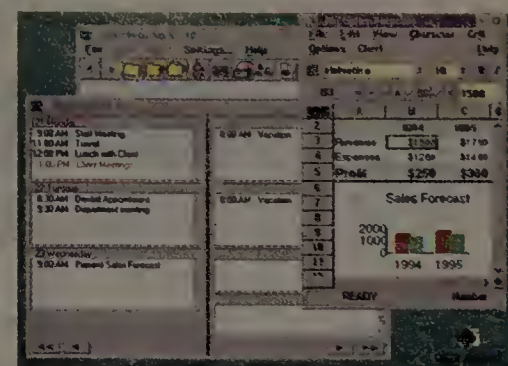
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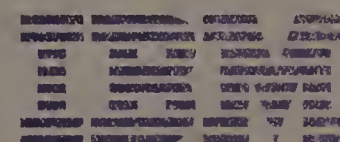
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# Computerworld Editorial Calendar

January - March, 1995

Issue Dates	Ad Closings Color* B&W		Editorial Features & Custom Publications	Show Distribution & Ad Readership Study Issues
Dec. 26-Jan. 2	Dec. 9	Dec. 16	<b>Annual Forecast Issue:</b> A look at key issues and trends that will impact IS Professionals in 1995.	
Jan. 9	Dec. 23	Dec. 30	<b>CW Guide To: Color Printers</b> Choosing the right printer: With numerous printing technologies (dye sublimation, thermal-wax, color laser and ink-jet) available today, what kind of printer best fits the needs and budgets of business users on LANs and corporate systems? How do you cost justify the move to color? <b>Buyers' Satisfaction Scorecard:</b> Color printers for large organizations from market-leading manufacturers. <b>Firing Line:</b> A color printer offering the latest technology such as dye sublimation or best alternative.	
Jan. 16	Dec. 30	Jan. 6	<b>Closer Look:</b> Client/Server Human Resource Applications	Starch Study
Jan. 23	Jan. 6	Jan. 13	<b>CW Guide To: Enterprise Network Management</b> How much can you manage?: How far have the leading enterprise network management platforms progressed in supporting the diverse platforms and functions needed by users on LANs and WANs across the organization? <b>Buyers' Satisfaction Scorecard:</b> Dominant network management platforms from major vendors <b>Firing Line:</b> The latest most feature-rich enterprise network management alternative.	<b>ComNet</b> Washington D.C. 1/23 - 1/26
Jan. 30	Jan. 13	Jan. 20	<b>CW Guide To: RAID Storage Devices</b> Large systems RAID, where does it fit in? With new RAID systems on the market packing incredible amounts of storage capacity in shrinking footprint space, the choices are better than ever. Should your DASD be replaced with RAID or should RAID be an adjunct to your current investment? <b>Buyers' Satisfaction Scorecard:</b> The market leading large systems RAID products. <b>Firing Line:</b> The latest RAID system for enterprise users.	
Feb. 1	Dec. 7		<b>Computerworld Client/Server Journal</b> <b>Vertical Market Focus:</b> Banking <b>Section Feature:</b> Product Focus on Networking	Software Developers' Conference Networks Expo UniForum Object World Interop + Networkworld Harvey Study
Feb. 6	Jan. 20	Jan. 27	<b>Special Quarterly Report:</b> Re-engineering the Workplace	
Feb. 13	Jan. 27	Feb. 3	<b>CW Guide To: PC Communications Software</b> Making connections: What are the pros and cons of various methods and products that provide remote access links to LANs and servers? How do they deal with security and reliability issues? What are the most cost effective methods? <b>Buyers' Satisfaction Scorecard:</b> Market-leading PC remote access software packages. <b>Firing Line:</b> Latest remote access software for server connections.	<b>Software Developers' Conference</b> , San Francisco 2/13 - 2/17 <b>Networks Expo</b> , Boston 2/14 - 2/16
Feb. 20	Feb. 3	Feb. 10	<b>Closer Look:</b> Videoconferencing	
Feb. 27	Feb. 10	Feb. 17	<b>CW Guide To: Notebook Computers</b> The price of portability? Users are most concerned about the key features of portability — notebook size, weight and battery life. Which vendors offer the best portability, reliability and support. <b>Buyers' Satisfaction Scorecard:</b> Notebooks from the top vendors based on market strength, reliability & support. <b>Firing Line:</b> Latest multimedia-enabled notebook from a leading vendor <b>Custom Publication:</b> Manufacturing White Paper: Defining Enterprise Resources Planning (part 1 of 4-part Manufacturing Series)	Starch Study
March 6	Feb. 17	Feb. 24	<b>Closer Look:</b> Enterprise Software Distribution Tools <b>Custom Publication:</b> White Paper on Object Technology	
March 13	Feb. 24	March 3	<b>CW Guide To: RISC Servers</b> Server Strategies: Short-term server purchases may be a matter of price/performance, but which systems make the most sense as long-term strategic platforms? Should users target different servers for every application or standardize on the best alternative? <b>Buyers' Satisfaction Scorecard:</b> Market leading RISC servers. <b>Firing Line:</b> Latest RISC server from a top vendor. <b>Custom Publication:</b> White Paper on Enterprise Application Development (part 1 of 4-part Enterprise Software Directions Series)	<b>UniForum</b> Dallas 3/14 - 3/16 Starch Study
March 20	March 3	March 10	<b>Closer Look:</b> Object-oriented Development Tools	<b>Object World</b> Boston 3/20 - 3/23
March 27	March 10	March 17	<b>CW Guide To: LAN Management</b> Vendors continue to add more sophisticated management capabilities to their peer-to-peer LAN management packages. How well do they address performance, security and tracking issues. How do these packages fit under the companywide network management umbrella? <b>Buyers' Satisfaction Scorecard:</b> Market-leading peer-to-peer LAN management packages. <b>Firing Line:</b> The latest software to consolidate LAN management for the organization.	<b>Interop + Networkworld</b> Las Vegas 3/28 - 3/30

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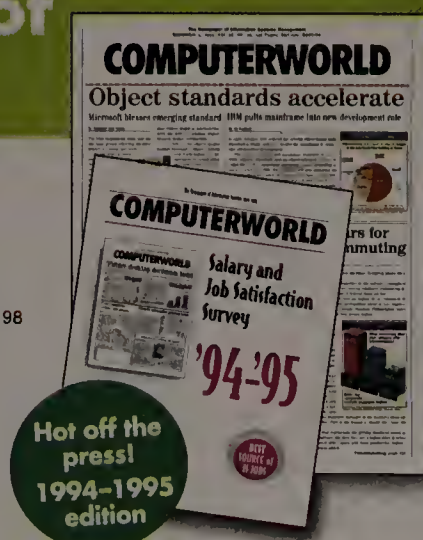
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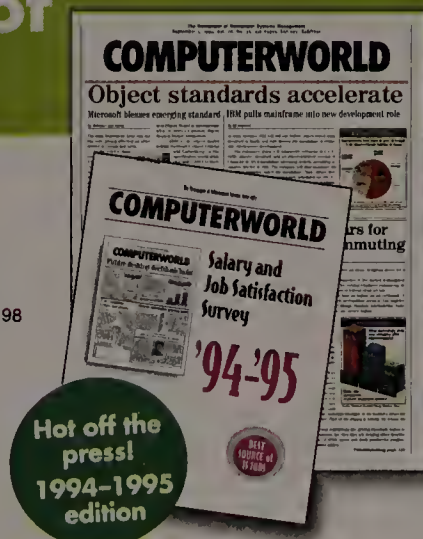
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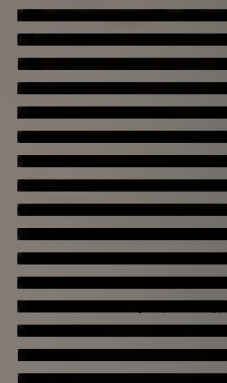
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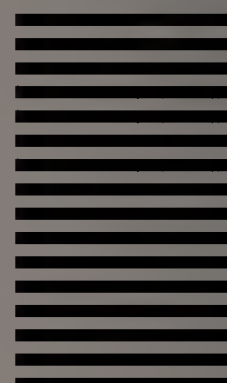
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# Warehouse

By Avery L. Jenkins

## woes

Trying to clean up legacy systems is "like boiling the ocean," says Jack Sweeney, director of information management resources at Bank of Boston

Creating a data warehouse is like boiling the ocean. It's a messy process that involves cleaning up otherwise unused direct-access storage devices. IS managers have to tackle dirty data, immature tools and insufficient network capacity.

**B**uilding a Unix-based data warehouse seemed like the perfect solution for supplying users' insatiable data demands at Florida Power Corp. in St. Petersburg, a utility that supplies electricity to about 1 million customers.

Perfect, at least, until reliability problems, exceedingly slow extract times and user demands for real-time data began taking their toll. "We were planning to take DB2 tables and extract them to an Oracle [database] on

a Unix server," says Mitch Hull, manager of information systems at Florida Power. "We have since moved that back to the mainframe on DB2."

As more IS organizations incorporate the data warehouse concept into their client/server enterprise strategies, such problems are not uncommon. Dirty data, immature tools and communication infrastructures that cannot keep up with the demand are all-

*Warehouse woes, page 102*



## Warehouse woes

CONTINUED FROM PAGE 101

too-frequent hurdles that managers must overcome.

As Sally King, manager of data access services for US West New Vector Group in Bellevue, Wash., puts it: "One of my teammates has said, 'You can't buy a data warehouse — you have to build it.'" And, like most construction projects, building a data warehouse requires hard work and a willingness to get your hands dirty.

### Dirty data

For Jack Sweeney, director of information management resources at Bank of Boston Corp., one of the biggest problems in setting up a data warehouse has been "getting the data to be consistent." Sweeney is drawing from legacy systems ranging from Computer Associates International, Inc.'s CA-IDMS to VSAM to DB2.

For example, in one system, the field containing the customer number may be designated one way while a second application using that same number applies a different descriptor to it, he says.

Although the by-the-book solution would be to modify the operational systems for greater consistency, trying to clean up legacy systems is "like boiling the ocean," Sweeney says. Instead, he eliminates the inconsistencies as data is transferred to the data warehouse.

This work is just one of the steps in Sweeney's information architecture for the data warehouse, but it is an important one, he says. "You've got to be a hard-headed evangelist in making sure the data is right."

For King, scrubbing the data has not been much of a problem. "Our business is relatively young," she says, so the company's legacy systems don't "harbor the nightmares that a banking system might have."

Other IS departments have simply washed their hands of the problem.

"We made the decision that we would not scrub the data," says Rob Collins, data architect at Westinghouse Savannah River in Aiken, S.C. "We can transform the data, we can normalize the attributes, but the contents — that's not our responsibility."

### A course in remodeling

For most of these users, the cornerstone of the data warehouse is the data architecture, and IS chiefs are grappling with the necessity of remodeling the data for its intended new uses.

King points out that when an operations system is developed, it is designed to facilitate transaction processing. But in a decision-support environment, "that type of data structure makes it hard on the user and hard on the system," she says.

Thus, while King's operational systems reside on a fully normalized Oracle database, the Oracle warehouse database is "denormalized," she says. This makes it easier for end users to find and apply the data they need while reducing the demands on the database to perform joins and other operations to provide the requested information.

Sweeney's approach was also to construct an information architecture first. "Rather than build a warehouse for separate groups, I wanted to put together an

## Da-ta ware-house

A data warehouse is a database that provides users with data, extracted from production and on-line transaction processing systems, that supports business analysis activities. At the same time, the warehouse protects the integrity and performance of the organization's production systems. By establishing a data warehouse, IS managers can provide users with the data they want while preserving their legacy systems.

infrastructure that was generic," he says.

In Sweeney's data warehouse, the user's query first goes through a metadata directory that determines who the user is and whether he is permitted access to that data. From that point, the system forwards the query to retrieval services, where a gateway translates it for the DB2 warehouse database.

The extract is then sent back either directly to the desktop or passed off to a local server.

"The architecture has a lot of moving parts," Sweeney says.

Collins says the design of his data warehouse began with the definition of the necessary metadata. One of the rules of creating a data warehouse, he says, "is that it has to be supported by a good, logical model." This model includes representative attributes, business definitions and names for the contents of the warehouse.

Collins is populating his data warehouse with financial, personnel and organization data. "We will not let ourselves be corrupted by previous procedures, and we will build a data dictionary," he says. A data dictionary, he explains, is critical for letting the end user know what the structure and contents of the warehouse are.

### Architecture first

Greg McFadden, warehouse project manager at Detroit Edison Co., says the first thing he did in beginning construction of his data warehouse was "get a handle on what the architecture would be."

McFadden is taking advantage of the ongoing reconstruction of legacy applications that Detroit Edison has undertaken.

McFadden acknowledges that the warehouse applications are not in production; he is in the midst of developing collection, outage and billing and revenue case analysis systems. His analysts are also building a contract services system that enables Detroit Edison's purchasing department to monitor the suppliers the company is paying and at what rates it is paying them, McFadden says.

is tackling such questions as which project — legacy re-engineering or warehouse construction — has priority, whether the data should be distributed or remain centralized and why staffers need to participate.

"We've had some fights," McFadden says, but eventually he was successful in convincing the application development groups in the organization of the importance of being "data stewards."

### Is the network ready?

McFadden says that one of the key elements in transforming his data warehouse from a pilot project to production is ensuring the infrastructure to support it. For starters, he needs increased network capacity.

"Bandwidth is something that is critical here," McFadden says. For example, one application requires transferring 20G bytes of data across his TCP/IP network to the warehouse; others are equally large.

"A lot of these jobs are four- to five-hour [transfer] jobs," McFadden says.

To address the situation, he has begun to define subsets of the data that end users actually require for their applications and then transfer over only the data that the applications need. His group is in the midst of "finding out what information users need," he says.

A second method of overcoming a lack of bandwidth is to "share queries and share reports so we don't have users cranking against that database," McFadden explains. "I want to facilitate reuse."

King is working to ensure that there exists sufficient network capacity to handle the load.

"We do recognize the potential impact of adding the data warehouse," she says. "Right now, we have about 100 users that are able to get in," which keeps concurrent use limited to about 20 users.

King says she expects within the next

## Trouble spots

**Remodeling.** Data warehouse construction involves remodeling data for use in a relational database system or, at best, for translation from one relational database to another.

**Management.** Management of warehouse data is a concern, particularly if the warehouse is spread across multiple servers, as is often the case. Tools that are still largely unproven in a production environment and still have wide gaps in functionality add to the complexity of the task.

**Communications infrastructure.** The communications infrastructure has to be up to the task of relaying a dramatically increased load of queries and responses, especially if much of the processing will be performed locally.



"Virtually no [warehouse management] tool is quite up to speed. We found a lot of holes in the products." —Jack Sweeney



two years to have to support 100 or more concurrent users, which would stretch the current network's capacity.

King, in conjunction with the company's network management staff, is now monitoring usage and bandwidth rates to establish baseline performance numbers.

With that information, the two groups can scale up the use of the data ware-

tools, Sweeney says functions such as extracts "are not a problem" for his company. He is using Prism as an extraction tool, combined with "a lot of Cobol and [Statistical Analysis Software] code to complement it."

## It's all up to users

In the end, Hull says, IS must deal with all the problems and obstacles to building a data warehouse as long as users continue to clamor for information to

help them do their jobs.

Many IS chiefs seem to be up to the challenge. A poll of 300 conference attendees conducted by Meta Group, Inc., a Westport, Conn., consultancy, showed that interest in data warehouses jumped from 5% of attendees in February 1993 to 90% a year later.

For its part, Florida Power has production customer files that include more than 300 tables and more than 30 million rows for about 60G bytes of information.

From this data, Hull extracts some 75 tables with 3 million to 4 million rows each, or about 20G bytes of data. About 100 users are employing Microsoft Corp.'s Access to analyze warehouse data.

"If users say they need real-time data, you accept that," Hull says. "It's IS's responsibility to provide it for them." ■

Jenkins is a freelance technology writer in Ansonia, Conn.

A poll of 300 conference attendees conducted by Meta Group, Inc., a Westport, Conn.-based consultancy, showed that interest in data warehouses jumped from 5% of attendees in February 1993 to 90% a year later.

house in such a way that usage keeps in line with network capacity.

## The tools don't cut it

But even if you get the infrastructure right, sometimes the available tools — from database engines to data extract and management tools to end-user query tools — can trip you up.

For example, "a lot of PC-based tools peg out based on the limitations of the desktop," namely, memory and design, McFadden says.

Sweeney says he expects some problems with software. "We are doing things that some of these database management systems were not designed to do," he says, such as rapid loading and refreshing of the warehouse database.

Sweeney's IS group started with SQL Server as the warehouse database but ran into trouble when refreshing SQL Server from the DB2 database. "We had to go through and rebuild indexes every time because the schema was so different," he explains.

He is now looking at other database products, including Sybase, DB2 and Oracle.

"Virtually no [warehouse management] tool is quite up to speed," Sweeney adds. "We found a lot of holes in the products."

One problem is that tools work well only with one or two platforms. For example, while one extract tool may work well with CA-IDMS or IBM's IMS, the same tool cannot be used effectively with VSAM data.

For many users, the immediate solution is to make their own tools. McFadden, for example, performs his extracts with Cobol routines developed in-house, as does Hull.

King, however, has an advantage in that she is simply taking data out of one instance of Oracle and placing it in another. She has been using Oracle's snapshot facility, which she says is meeting her database replication needs.

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# Computer Careers

## WHEN WORK EXPERIENCE MATTERS

BY JULIE HART

### When is experience important?

"When you need to get going quickly, you definitely need someone with experience." — *Joe Hunter*

"When the systems at the previous job and the new job are identical. Then you can hit the ground running and start making the organization money." — *Richard Swanson*

"Some very technical jobs such as senior-level analysts and programmers [require] experience. They've already been through the trenches and [can] give you the best bang for your buck." — *James LoSasso*

"The systems we work on are extremely complex, and we don't have time to train programmers. Even at the computer operator level, we hire [fairly seasoned people] to maintain our Unix and mainframe systems. We can't afford to hire inexperienced people because technology moves too fast." — *Kim Whitney*

### When would you hire an inexperienced person?

"I might hire an inexperienced person if some of their skills crossed over. . . . If I needed someone to set up a help desk, I'd prefer someone who'd done that before. But if I couldn't find that person, I might consider someone who had done a lot of user-requirements defining on a project team. At least they [would] have the necessary client skills." — *John Wise*

"I can't think of any job. My formula is that you need both learning and experience. But with the body of knowledge changing so rapidly, you can't always find experience. In that case, I might choose someone young and inexperienced as long as they have the knowledge." — *Swanson*

"We hire inexperienced people as PC technicians. We also hire some programmers right out of school. We make sure that every entry-level person has a mentor. It's the only way we can bring them up to speed." — *LoSasso*

### What experience do people tend to exaggerate about on resumes?

"The impact of their work. Someone may have implemented a Novell network in multiple locations affecting 300 people. What they say is that the network supports hundreds of people — that could be interpreted as 100 or 900. They say their work resulted in a cost reduction of [millions] of dollars. What they don't mention is that they only played a small part. I don't think people fib much about their education and certification." — *Wise*

"Their ability and knowledge of tools and products. If someone comes in and says

they know Microsoft Word, Lotus [and so on], chances are they've used it once. In reality, they can barely get through building a spreadsheet. If they've walked by something and touched it, they figure they have experience." — *LoSasso*

"Their hands-on experience with particular technologies. Their interpretation of experience may be different from yours. For instance, maybe the extent of their spreadsheet experience is using Excel once. They're not really lying, they're just a different level of user than what you're looking for." — *Hunter*

"How involved they were on a particular project. Unless I go to their previous manager to check, there's no way to know if what they say is true." — *Whitney*

### What skills are best learned on the job?

"Problem-solving and analysis skills. We're not dealing with a homogeneous system. You can't learn from a book how

to analyze and deduce where your problems are coming from in a mixed environment." — *Wise*

"You can't hire someone and expect them to understand the company and how it operates [right away]. Even if you hire someone who has worked in your industry before, they can still bring a breath of fresh air to your organization as they learn about your company and its politics." — *Hunter*

"In the consulting business, that's a tough question. We can't hire consultants and expect them to learn on the job. With the high cost of billing, we can't expect clients to pay for a learning curve." — *John B. Nyhan*

"If a company has a standard way of implementing systems, that's best learned on the job. [For instance], how a company wants to document design or document analysis. That's different everywhere you go." — *Whitney*

Hart is a freelance writer in Sunnyvale, Calif.

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# Hiring picture

TV sales may be up in the consumer electronics business, but companies are keeping IS departments lean.

By Leslie Goff

Consumer confidence has returned, and electronics manufacturers are reaping the rewards. But while the industry has come back into sharp focus, the hiring picture for information systems professionals is still unclear.

Driven by record sales of color televisions, the consumer electronics industry generated \$56 billion in sales last year, according to estimates from the Electronics Industries Association, an Arlington, Va., trade and lobbying group. This figure could reach \$60 billion this year, a projected increase of 9%.

Sales may be strong, but the industry is driven by fierce pricing competition. Manufacturers struggle to add new features at a lower cost each year. To this end, a massive migration to client/server architectures is under way, as are numerous business re-engineering efforts.

The pressure to operate as efficiently as possible is palpable, and IS hiring projections are typically single-digit figures.

"Consumer electronics is very competitive, and IS is always under pressure to

stay lean," says Bill Lucy, manager of business applications at Mitsubishi Consumer Electronics of America, Inc. in Santa Ana, Calif., a maker of TVs and VCRs. He says he plans to hire four or five people this year for manufacturing and sales applications and has requested twice that many in 1996's budget.

Thomson Consumer Electronics in Indianapolis is recruiting IS staffers on a departmental basis, says Shea Kelly, manager of human resources for marketing and sales who will seek to fill four or five technical positions this year. The big push at Thomson, which owns the RCA brand name, is to recruit engineers and individuals with MBAs and IS backgrounds into product development and management positions.

"We look for [information technology] professionals outside the traditional [information technology] roles with greater interest than we did in the past," Kelly says, adding that technical-related job opportunities beyond the confines of IS will increase as interactive TV develops.

At TV and cable set-top box manufac-

turer Zenith Electronics Corp. in Glenview, Ill., sales for the first nine months of 1994 grew 17% over sales for the same period in 1993. Hiring plans are somewhat more ambitious but still modest.

"We generally don't have a lot of fluctuation in hiring, but we'll have a blip in '95 with a lot of new systems going in," says Jim Novosel, director of corporate computing. "We're seeing demand for new systems to support re-engineered business processes."

Novosel says he anticipates hiring contract programmers to meet part of the demand as well as filling several permanent positions and retraining staff members in client/server technologies. For new positions, he seeks experienced IS staffers only. "We're not hiring entry-level people," he says.

## Trend or blip?

While the IS hiring outlook at Zenith, Thomson and Mitsubishi is modest to strong, it's difficult to say whether that is the industry trend. Many executives in the consumer electronics industry are loath to discuss any subject the competition might find revealing. A Sony Electronics Corp. spokesman notes, however, that the company will try to maintain staff levels this year in accordance with the goals of a business process re-engineering effort.

New IS hires should possess client/server experience coupled with vertical applications experience in manufacturing, sales and marketing, research and development and product management. A solid AS/400 background is also a foot in the door; the IBM midrange platform figures prominently in manufacturing and customer service and sales applications. Job seekers with relational database skills and a knowledge of Unix platforms are also in demand.

Goff is a freelance writer in New York.

## Crossing over

Although IS hiring plans are somewhat hazy, new opportunities will evolve in the consumer electronics industry.

Two factors are creating a new employment market: the emergence of technologies such as high-definition TV and multimedia, and the convergence of computer, TV and telecommunications.

Multimedia products and services are expanding the industry beyond traditional boundaries to include publishers, on-line service providers and other segments looking to hop on the interactivity bandwagon, notes Ken Christie, marketing director at the Interactive Multimedia Association (IMA) in Annapolis, Md.

Specifically, companies need programmers and analysts experienced in C, C++, Microsoft Corp.'s Visual Basic and Microsoft Access to develop interactive multimedia games and other CD-ROM titles, says Ronn Rogers, managing director at Multimedia Recruiters USA in Dallas.

User interface design experience will be hot as TV manufacturers move into the set-top box arena. The cable box that sits on top of your TV may be the key to interactive TV if consumers are offered an easy-to-use interface for such applications as video-on-demand and interactive shopping.

"The direction the industry is taking toward interactive TV blurs the lines between a computer interface and a TV interface," says Shea Kelly, a human resources manager at Thomson Consumer Electronics. "People who understand both have the advantage."

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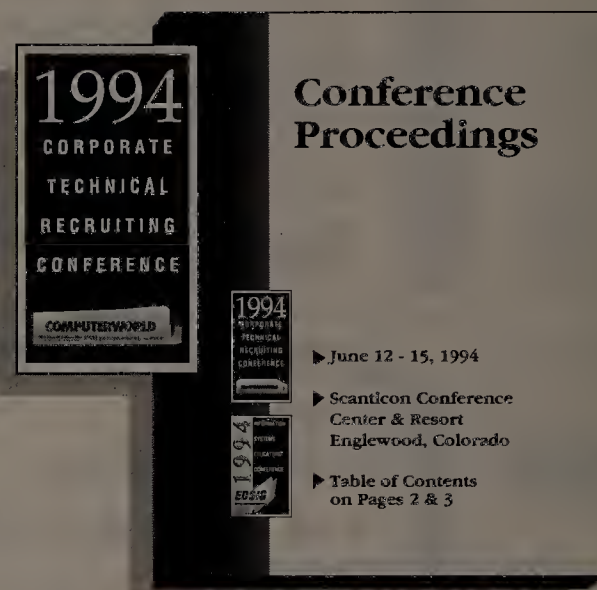
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- conduct performance reviews
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- oversee the development team

To qualify, you should have:

- a Bachelor's degree in Computer Science, or the equivalent, with specialization in user interface design
- a minimum of three years' experience in user interface design and methodology
- team management experience
- knowledge of Unix and/or Windows.NT, C, C++, X, and at least one user interface builder (UIMX, BuilderXcessory, Open UI)
- knowledge of Motif, OpenLook or computer graphics

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As a Program Manager, you will:

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- find innovative solutions that meet customer needs
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To qualify, you should have:

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- a Bachelor's degree in Computer Science (or the equivalent)
- a minimum of three years' experience in rendering, computer animation, 3D software, and GL/Open GL
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- implement interfaces required for interactive edition and compilation
- implement some of the base desktop tools common to all toolsets

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- develop software according to established norms
- identify problem areas and propose permanent solutions
- encourage initiative and creativity within your team

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Qualifications include at least 3 years AS/400 programming experience (primarily COBOL) and application level tuning, including use of windows, subfiles and S/36 technologies. An understanding of AS/400 architecture and facilities is required. System level tuning experience a plus.

### SR. CLIENT/SERVER TECHNICAL SUPPORT SPECIALISTS

Responsible for remote support of 100 distributed Novell LANs which provide an infrastructure for PowerBuilder client/server applications. Requires 3-5 years experience in problem analysis and support of Novell based LANs, utilizing Ethernet connectivity. Background in TCP/IP, multi-protocol stacks and SNMP. CNE required; ECNE preferred. Experience with NMS, Spectrum, Compaq Insight Manager, Cisco routers, Cabletron hubs, Frame Relay, relational databases, Unix and middleware a plus.

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Requires 3-5 years experience in the capacity and performance monitoring, tuning, and problem diagnosis/resolution of Novell LANs, gateways, etc. ECNE desired. Multi-platform WAN experience preferred; frame relay, Spectrum, Cabletron hubs, and Cisco router a plus. Must be able to work effectively in a highly complex, fast-paced environment.

### AS/400 TECHNOLOGISTS

Requires 3-5 years experience with AS/400s in a distributed environment, and familiarity with AS/400 communications and LAN connectivity issues (SDLC, SNA, Token Ring, Ethernet). Must also be familiar with OS/400 issues and licensed products, CL programming and COBOL, with knowledge of AS/400 hardware and attached devices.

### RS/6000 TECHNOLOGISTS

Requires 3-5 years experience with UNIX systems including at least 2 years on RS/6000. Familiarity with IBM and other vendor products, backup and recovery procedures and TCP/IP, NFS, DNS and SNA experience, exposure to Xstations, remote printing and scanners are pluses.

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## Management Information Services Director

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Sarasota County is seeking candidates for the position of Director of Management Information Services. The successful candidate must possess leadership, vision, management, and team-building skills. This individual will be expected to bring the Department together as a team and provide strong direction in addressing the issues of privatizing selected MIS activities as the County explores new initiatives. This department consists of 5 separate divisions with a staff of 41 and a total operating budget of 4.5 million dollars. Specific duties include directing the activities of subordinate managers to accomplish the goals and objectives established for the County MIS Department, coordinating and facilitating comprehensive county-wide distributed and decentralized networks and systems, planning departmental PC networks and systems, formulating policy and procedures to control complex applications systems, directing programs to review and purchase all hardware and software needed by the County, managing all telecommunications functions for the County, developing long range plans and cost projections for the County's MIS needs, and determining and administering departmental budgets. ALL APPLICATIONS MUST BE RECEIVED AT SARASOTA COUNTY PERSONNEL DEPARTMENT BY MARCH 1, 1995.

**MINIMUM QUALIFICATIONS:** A Masters Degree from an accredited college or university with a major in Public Administration, Business Administration, Computer Science or related field, and six years of data processing management experience in a large organization. At least two years of the requisite experience must include management responsibility in an environment involving mainframe applications, wide area PC networks and local area PC networks. Progressively responsible experience as described herein may be substituted on a year-for-year basis for the required college degree. **PREFERRED QUALIFICATIONS:** Prior responsibility for all strategic systems planning and implementation, experience in a centralized organization. Salary: \$47,137-\$74,463. Annually Excellent benefits package provided. Application materials may be sent to Sarasota County Personnel Department, P.O. Box 8, Sarasota, FL 34230-0008. TDD: (813) 364-4701. Successful candidates for employment are required to pass a pre-employment substance screening and physical. EOE/AA/ADA

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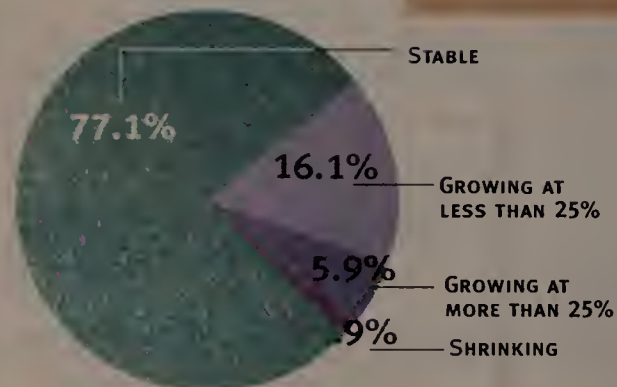


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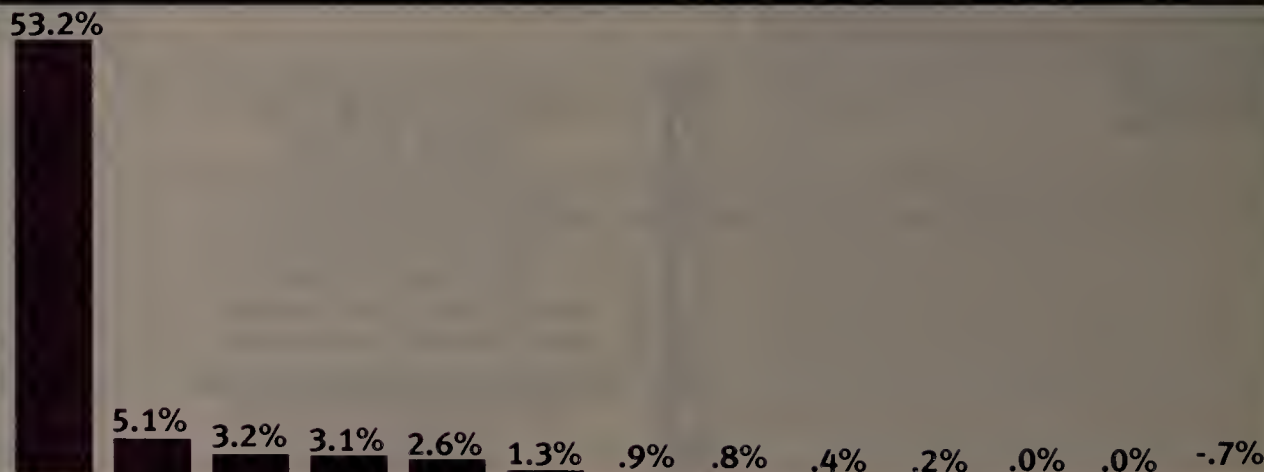
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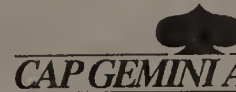
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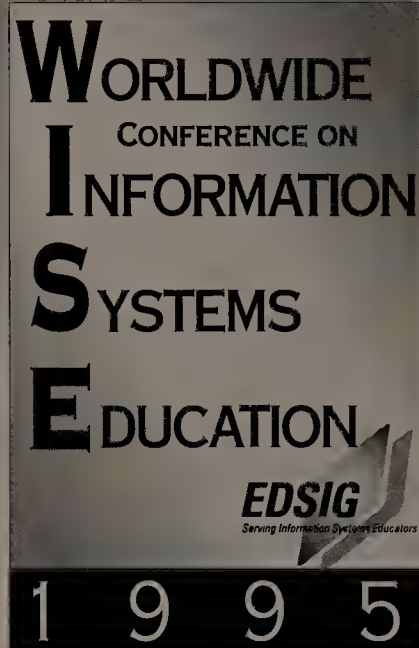
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# Marketplace

## FISH or FOWL?

**MARKET NEEDS PULL PERSONAL DIGITAL ASSISTANTS IN DIFFERENT DIRECTIONS**

It's no secret that personal digital assistants (PDA) have in many respects failed to live up to the hype that accompanied their introduction.

That's not to say no one is buying the diminutive devices. Forrester Research, Inc. in Cambridge, Mass., expects PDA sales to top 370,000 units this year. However, the high price of PDAs has stymied their entrance into the consumer market, and functional limitations are hampering vendors' push into vertical applications. As a result, PDA sales are being squeezed into a relatively narrow market niche — early technology adopters and mobile executives.

PDAs "are very powerful but quite expensive," says Janet Cohen, an analyst at Forrester Research. "And the wireless infrastructure isn't in place yet for the broad consumer market — and won't be until the turn of the century."

### So who's buying PDAs now?

For a chief executive officer on the go, the current crop of PDAs has some key advantages over laptops and pen-based systems. The low weight of PDAs provides exceptional portability, while the communications orientation of many of the devices makes it easy for users to check electronic mail back at the office.

This puts PDA vendors seeking broader markets in a quandary, however. "For the vendors to stay alive, fund [research and development] and drive the price

point down, they must go to the vertical markets. That's where the dollars are right now," Cohen says.

So information systems managers can expect PDA vendors to come knocking this year with enticing proposals for handling vertical applications. Some users are indeed implementing successful projects based on "very vertical information-gathering" needs, according to Tim Schmidt, an analyst at Intelligent Technologies International, Inc. in Orlando, Fla.

Still, some users who have already evaluated PDAs for these heavy-duty computing tasks advise caution.

For example, F. D. Titus & Son, Inc., a medical supply company in City of Industry, Calif., is rolling out hardware and software to support its 180 mobile sales representatives. A lightweight, wireless PDA sounds like an ideal solution, but the computing requirements are beyond the scope of current PDAs, says Tim Titus, vice president of development.

"Our application includes order entry and order management for field sales reps who carry 14,000 products," Titus says. A sales representative on a call needs to sort through the product database quickly and calculate prices and commissions. Titus examined several PDAs but found they lack the raw power needed for such assignments.

The company settled on IBM pen-based tablets with full-fledged 486 pro-

cessors, 8M bytes of memory and 170M-byte hard drives.

IS managers at the Chicago Board of Trade ran into some other limitations. They examined a wide spectrum of handheld devices to anchor a federally mandated electronic trading system.

Project director Philip Scholtz says the Board of Trade held a bidders conference to describe its needs to potential PDA suppliers. About 200 vendors attended, yielding 50 bids ranging from standard PDAs to touch-screen units. These applicants faced the challenge of providing floor traders with a very light computing device — less than 1 pound — with split-second, secure wireless communications to the central trading system.

"One trader logged 100 trades in five minutes. We need speed almost like a 386; the commercially available PDAs just don't meet those stringent requirements," Scholtz says. The board ultimately settled on custom-made units designed by Synerdyne Corp. and manufactured by Seiko. Altogether, deployment of the first 100 units has cost approximately \$11 million.

"Many people seem very frustrated because they are trying to match their applications to the boxes available. Instead, they should be saying, 'Here are my requirements' and let vendors match their products," Scholtz says.

PDAs may fill the bill in several vertical applications, including health care, field sales and service and transportation applications, Cohen says. However, PDA vendors must offer a high degree of customization to truly meet the needs of many applications. ■

Slater is a freelance writer in Ashland, Mass.

### WHAT PRICE PDAs?

The initial unit price is not the only cost barrier for PDAs. Wireless communications bills can add up quickly. "If you only have a \$100 monthly allowance for wireless E-mail and you spend it in the first half of the month, you can't just turn the PDA off for a few weeks," says Tim Schmidt, an analyst at Intelligent Technologies International.

Prices for high-end PDAs are off the charts right now, Schmidt says. For example, Motorola, Inc.'s Envoy communications-centric PDA costs about \$1,400. "That's way too high. You can buy those technologies in other form

factors for much less," Schmidt says.

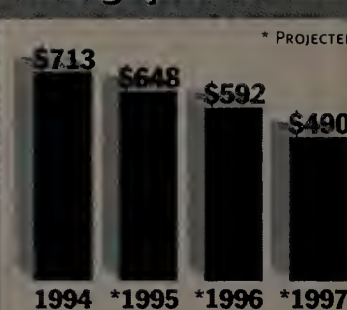
The next tier of PDAs will include several based on the Magic CAP operating environment. They're expected to hit the market this year, priced at about \$800. The new generation of Apple Computer, Inc.'s Newton Message-

Pads costs \$600 to \$700.

Other firms will jump in with lower prices, such as Hyundai Electronics of America's forthcoming \$400 unit, which doesn't include wireless communications hardware. A full set of communications options adds about \$500 to a PDA's price tag, Schmidt says.

That's still a far cry from the price point that will move PDAs into the consumer marketplace. Schmidt says consumers will likely buy in when a PDA costs roughly the same as a VCR — about \$150 to \$200. But Forrester Research says this will not happen soon. The research firm says the average PDA will cost just over \$300 by the year 2000. — Derek Slater

### Average price of PDAs



SOURCE: FORRESTER RESEARCH, INC., CAMBRIDGE, MASS.

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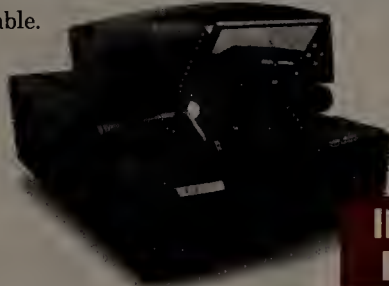
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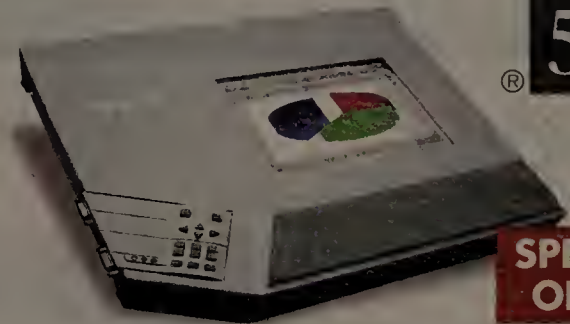
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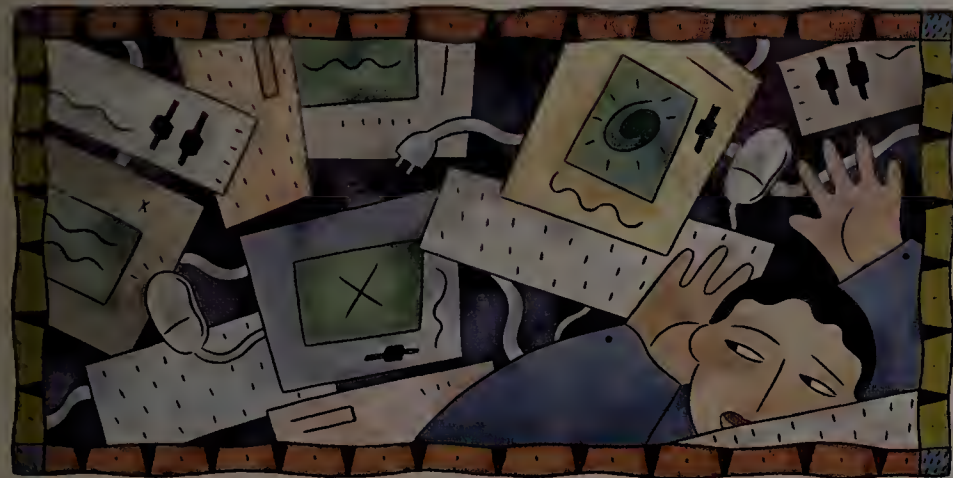
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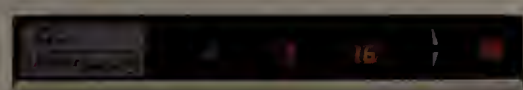
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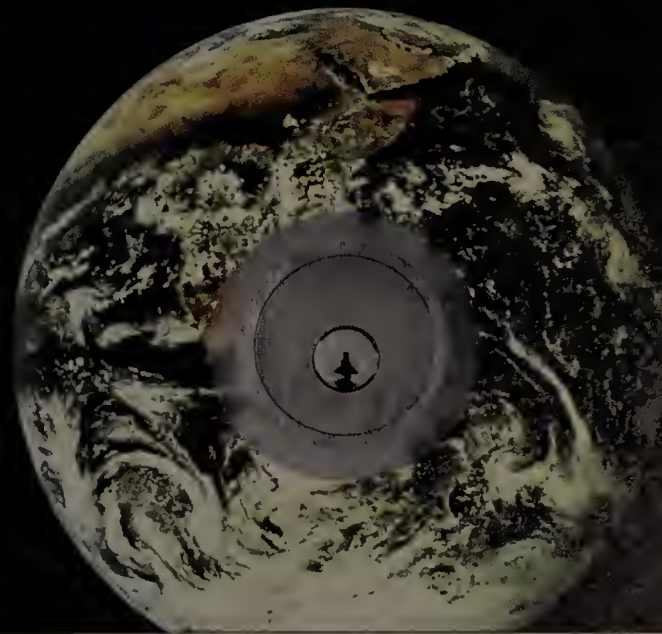


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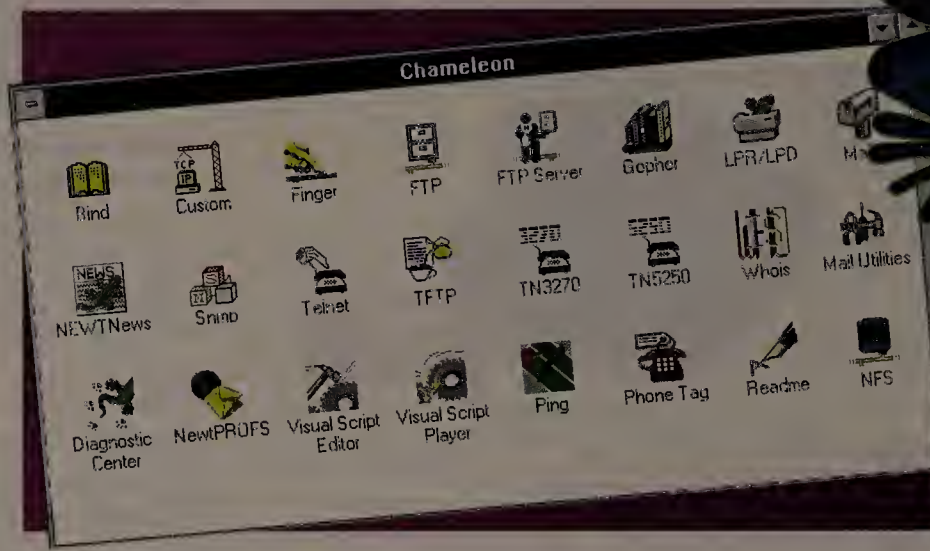
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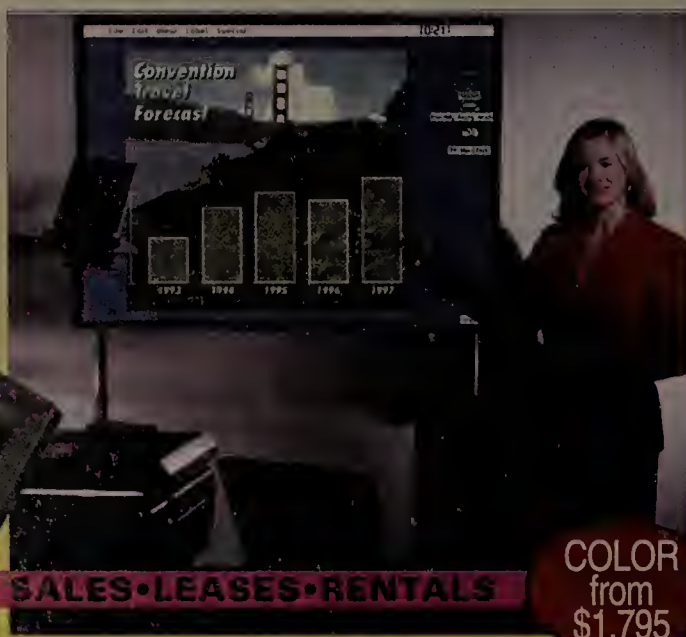
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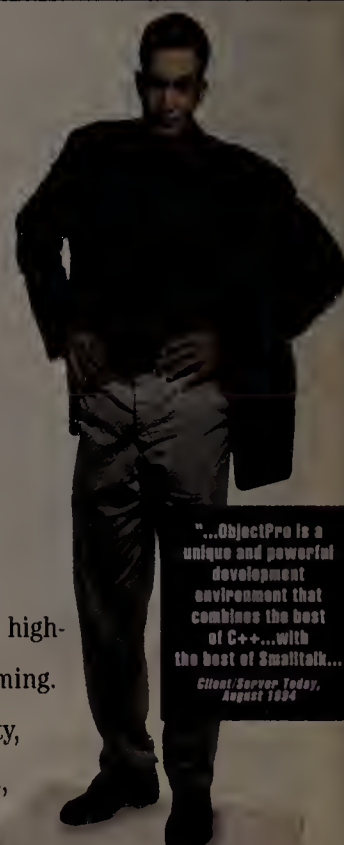
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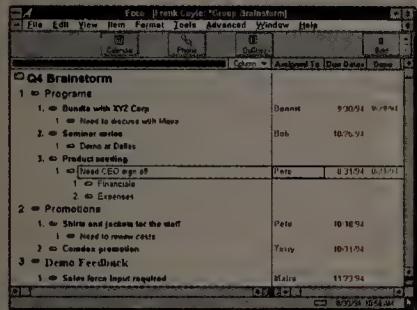
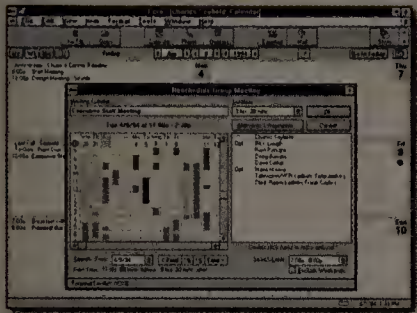
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Sealed Bid CAP-71-94 will be received on Tuesday, February 28, 1995, between 9:00 A.M. and 4:00 P.M. EST/EDST, in Room 2810, Purchasing & Administrative Services, Massachusetts Bay Transportation Authority, Ten Park Plaza, Boston, MA 02116, for the following:

Paratransit Computer System in accordance with MBTA specifications  
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A Pre-Bid Conference will be held at 10:00 A.M. on Tuesday, February 14, 1995, at the Purchasing & Administrative Services Department, Room 2810, Ten Park Plaza, Boston, Massachusetts.

The Contractor will be required to comply with all applicable Equal Opportunity Laws and Regulations and DBE/WBE Laws and Regulations.

All Bidders will be required to certify that they are not on the Comptroller General's List of Ineligible Contractors.

Invitations for Bid and other pertinent information and specifications may be obtained at the Purchasing & Administrative Services Department, Room 2810, Ten Park Plaza, Boston, Massachusetts.

James J. Kerasiotes  
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#### PUBLIC NOTICE TO OFFERORS

Proposals to furnish consulting services in the use of Sterling Software's ADW Design & Construction Workstations will be received and time stamped up to 2:00 p.m. (HST) on March 13, 1995 in the reception area of the Department of the Attorney General, Hale Auhau, 425 Queen Street, Honolulu, Hawaii 96813.

The technical requirements and Proposal forms may be obtained from the Resource Coordination Division, 425 Queen Street, Honolulu, Hawaii 96813, at no cost, from February 3, 1995 through February 21, 1995.

The State reserves the right to reject any or all proposals and to waive any defects in said proposals as it determines would be in the best interest of the public.

All questions pertaining to this project shall be directed to the contact person, Eileen Madigan, telephone number (808) 586-1095, FAX number (808) 586-1097.

Bids / Proposals

#### MS CENTRAL DATA PROCESSING AUTHORITY

Sealed proposals will be received by CDPA, 301 N. Lamar St., 301 Bldg., Suite 508, Jackson, MS 39201 for the following:

**RFP 2684** due Thursday, March 2, 1995 @ 3:30 P.M. for the acquisition of a replacement system for two existing IBM AS/400 computers for the Mississippi Department of Transportation, and an upgrade to an existing IBM S/36 computer for East Central Community College. No Charge Vendors may request RFPs with no charge by calling Linda Watkins at (601) 359-2604 CDPA reserves the right to reject any/all bids and to waive informalities.

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METROPOLITAN TRANSPORTATION AUTHORITY NOTICE is hereby given that the Authority will receive sealed bids for the following Services as indicated below, on which date they will be opened at the indicated time at the Authority's offices at 347 Madison Avenue, New York, NY 10017 (5th floor). Bids must be submitted on the Inquiry form provided by the Authority. Copies of such forms may be secured from Ms. Jean Benning, Systems Administrator, Metropolitan Transportation Authority, 347 Madison Avenue, New York, N.Y. 10017-3706 or by calling (212) 878-7209.

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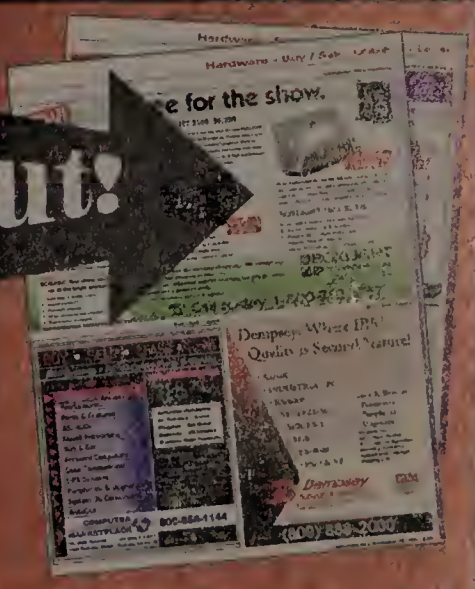
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# Feb. 3 Stock Ticker

## Gainers

## Losers

### Percent

SAPIENS INTL. CORP. N.V.	122.2	EASEL CORP.	-20.7
IPL SYSTEMS INC.	50.0	TRICORD SYSTEMS	-16.7
WEITEK	38.5	VMARK SOFTWARE INC.	-16.2
RACOTEK INC.	32.1	PLATINUM SOFTWARE	-12.0
PARALLAN COMPUTER	23.3	TELEBIT CORP.	-10.0
PEOPLESFT	20.2	PLATINUM TECHNOLOGY	-8.2
NETWORK COMPUTING DEVICES	17.6	INTELLIGENT INFO. SYSTEMS	-8.2
MANUGISTICS GROUP INC.	17.1	INTEGRATED SILICON SYSTEMS	-8.2

### Dollar

PEOPLESFT	6.38	VMARK SOFTWARE INC.	-3.00
XEROX CORP.	5.50	INTEGRATED SILICON SYSTEMS	-2.25
ITT CORP.	5.13	PLATINUM TECHNOLOGY	-1.88
US ROBOTICS	4.00	SOFTWARE SPECTRUM INC.	-1.50
DIGITAL EQUIPMENT CORP.	3.88	BELL ATLANTIC CORP.	-1.50
IBM	3.25	TEKTRONIX INC.	-1.25
TEXAS INSTRUMENTS	3.00	COMPUTER HORIZONS	-1.13
INFORMIX CORP.	3.00	PLATINUM SOFTWARE	-1.13

## Wang's picture brightens

Wang Laboratories, Inc. (WANG), having emerged from bankruptcy with a plan to focus on the workflow and imaging market, is again generating profits, if not interest.

"A small section of the investing public is all that is paying attention right now," said Greg Curham, an analyst at Volpe, Welty & Co. in San Francisco. "The stock has good days ahead of it, though."

Curham said the Lowell, Mass., company is generating lots of cash flow, as evidenced by a sixth consecutive profitable quarter. And last week Wang completed its purchase of Groupe Bull's workflow, imaging, repair maintenance and U.S. government systems integration businesses.

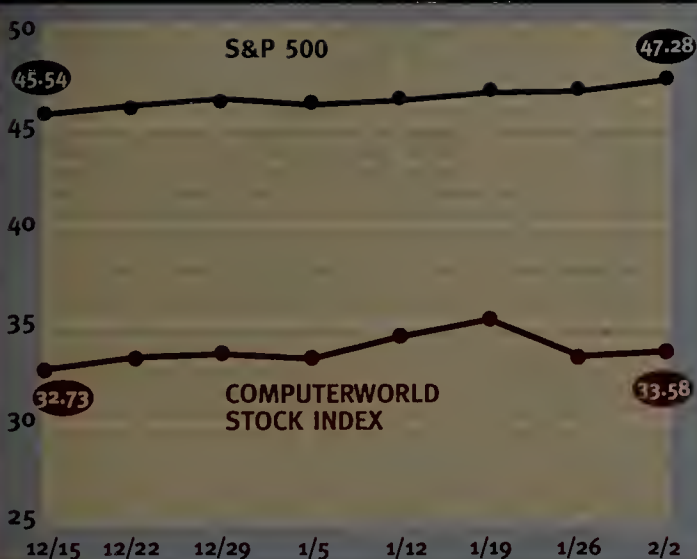
However, David Benham, vice president at First Albany Corp. in New York, says the workflow and imaging technology gained from Bull won't help Wang make many inroads against competitors FileNet Corp. (FILE) and IBM.

"No one is looking at [the Bull purchase] as an exciting workflow/imaging story, [so] it'll be quite some time before it can make a significant contribution" to Wang's overall business, he said. FileNet retains the lead in the market.

Even so, Curham said the purchase will provide Wang with the opportunity for numerous cost savings. He says the stock is undervalued, hovering around \$13 recently, down from a high of \$21½ after an initial burst of investor enthusiasm when Wang exited bankruptcy.

"Investor expectations were a little ahead of reality," Curham said. "It will take a couple of years of Wang posting these types of results" for the stock to see significant gains again. — *Tim Ouellette*

## STOCK TRADING INDEX



EXCH	52-WEEK RANGE			FEB. 3 3 PM	WK NET CHANGE	WK PCT CHANGE	EXCH	52-WEEK RANGE			FEB. 3 3 PM	WK NET CHANGE	WK PCT CHANGE
Communications and Network Services							UP 2.18%						
OTC	53.25	20.13	3 COM CORP.	49.25	2.00	4.2	OTC	37.25	19.00	LEGENT CORP.	30.25	0.00	0.0
NYS	43.50	36.25	AMERITECH CORP.	43.50	-0.63	-1.4	OTC	86.50	29.75	LOTUS DEVELOPMENT	44.75	0.13	0.3
NYS	57.13	47.25	AT&T	50.75	1.00	2.0	OTC	17.75	4.38	MAGIC SOFTWARE ENTERPRISES	5.50	0.63	12.8
OTC	19.75	12.75	BANYAN SYSTEMS INC.	17.56	0.69	4.1	OTC	15.50	6.00	MANUGISTICS GROUP INC.	10.25	1.50	17.1
OTC	43.88	18.63	BAY NETWORKS INC.	31.25	1.63	5.5	OTC	27.50	14.75	MAPINFO CORP.	25.25	0.00	0.0
NYS	58.38	48.38	BELL ATLANTIC CORP.	53.38	-1.50	-2.7	OTC	6.88	1.44	MATHSOFT	2.25	0.00	0.0
NYS	63.50	50.50	BELLSOUTH CORP.	59.50	1.25	2.1	OTC	20.25	6.50	McAfee ASSOCIATES	16.50	-0.13	-0.8
NYS	21.50	10.00	BOLT, BERANEK & NEWMAN	16.13	0.13	0.8	OTC	17.25	9.38	MENTOR GRAPHICS	13.50	-0.25	-1.8
OTC	15.75	9.00	BROOKTROUT TECHNOLOGY	11.50	0.38	3.4	OTC	20.00	11.50	MICRO FOCUS	13.13	-0.50	-3.7
NYS	53.00	33.06	CABLETRON SYSTEMS	40.38	0.38	0.9	OTC	11.63	4.63	MICROGRAFX INC.	7.13	0.50	7.5
OTC	43.00	10.00	CENTIGRAM COMMUNICATIONS	14.25	0.25	1.8	OTC	65.25	39.00	MICROSOFT CORP.	60.38	0.63	1.0
OTC	50.50	21.00	CHIPCOM CORP.	43.50	0.88	2.1	OTC	45.00	11.25	NETMANAGE INC.	40.75	-0.50	-1.2
OTC	40.75	18.75	CISCO SYSTEMS INC.	36.13	2.38	7.0	OTC	46.50	26.25	ORACLE CORP.	44.50	1.94	4.6
OTC	14.38	6.13	COMPRESSION LABS INC.	8.63	0.13	1.5	OTC	40.25	21.50	PARAMETRIC TECHNOLOGY	38.25	0.00	0.0
OTC	12.38	5.13	COMPUTER NETWORK TECH.	6.50	-0.13	-1.9	OTC	24.50	13.38	PARCPLACE SYSTEMS INC.	17.75	-0.25	-1.4
OTC	25.75	7.50	CROSSCOMM	12.63	-0.63	-4.7	OTC	39.50	13.00	PEOPLESFT	38.00	6.38	20.2
OTC	3.50	2.00	DATA SWITCH CORP.	3.38	0.19	5.9	OTC	8.50	4.13	PHOENIX TECHNOLOGIES	7.88	0.44	5.9
OTC	38.25	17.88	DSC COMMUNICATIONS	33.88	0.50	1.5	OTC	87.25	35.50	POWERSOFT	73.00	1.55	2.2
OTC	71.50	20.00	FORE SYSTEMS INC.	66.25	1.50	2.3	OTC	14.75	3.50	PLATINUM SOFTWARE	8.25	-1.13	-12.0
NYS	35.88	10.00	GENERAL DATACOMM INDS.	24.00	-0.75	-3.0	OTC	24.25	10.00	PLATINUM TECHNOLOGY	20.88	-1.88	-8.2
NYS	34.75	29.50	GTE CORP.	33.88	-0.13	-0.4	OTC	56.75	27.00	PROGRESS SOFTWARE CORP.	49.50	0.75	1.5
NYS	95.97	77.00	ITT CORP.	94.88	5.13	5.7	OTC	4.13	1.88	QUARTERDECK OFFICE SYS.	3.44	0.06	1.9
OTC	27.88	17.25	MCI COMMUNICATIONS CORP.	19.25	1.38	7.7	OTC	24.00	9.50	RAINBOW TECHNOLOGIES INC.	17.38	1.88	12.1
OTC	15.75	7.50	MICOM COMMUNICATIONS CORP.	7.50	-0.50	-6.3	OTC	9.25	2.00	RASTEROPS	3.75	0.00	0.0
OTC	12.63	4.50	MICROCOM INC.	11.25	0.13	1.1	OTC	7.13	2.88	ROSS SYSTEMS	4.75	0.63	15.2
OTC	10.50	4.00	NETRIX CORP.	9.50	-0.13	-1.3	OTC	20.50	0.50	SAPIENS INTL. CORP. N.V.	2.50	1.38	122.2
OTC	8.75	3.25	NETWORK COMPUTING DEVICES	5.00	0.75	17.6	OTC	27.25	9.75	SOFTKEY INTERNATIONAL INC.	25.38	0.50	2.0
NYS	27.75	7.38	NETWORK EQUIPMENT TECH.	24.75	0.50	2.1	OTC	7.75	3.00	SOFTWARE PUBLISHING CORP.	4.00	-0.06	-1.5
OTC	27.13	13.88	NETWORK GENERAL	25.63	0.38	1.5	OTC	10.00	5.00	STATE OF THE ART	9.38	0.38	4.2
OTC	9.50	5.56	NETWORK SYSTEMS CORP.	5.56	0.19	3.5	NYS	38.38	25.00	STERLING SOFTWARE INC.	35.13	-0.88	-2.4
NYS	68.75	26.50	NEWBRIDGE NETWORKS CORP.	38.88	1.38	3.7	OTC	16.50	3.63	STRUCT. DYNAMICS RESEARCH	6.50	0.00	0.0
NYS	37.75	26.00	NORTHERN TELECOM LTD.	34.88	0.25	0.7	OTC	57.00	35.25	SYBASE INC.	45.75	0.88	1.9
OTC	26.63	13.38	NOVELL INC.	18.00	0.00	0.0	OTC	21.13	9.88	SYMANTEC CORP.	19.88	-0.13	-0.6
NYS	41.38	33.25	NYNEX CORP.	38.63	-0.13	-0.3	OTC	50.50	33.00	SYNOPSYS	46.50	0.75	1.6
OTC	30.00	15.50	OCTEL COMMUNICATIONS CORP.	21.25	-0.25	-1.2	OTC	18.00	10.63	SYSTEM SOFTWARE ASSOC.	17.50	0.38	2.2
OTC	36.25	10.75	OPTICAL DATA SYSTEMS INC.	32.50	-1.00	-3.0	OTC	6.13	3.25	TRINZIC CORP.	5.13	-0.13	-2.4
OTC	7.50	2.13	PENRIL DATA COMM NETWORKS	2.88	0.00	0.0	OTC	30.00	7.88	VIEWLOGIC SYSTEMS	9.25	-0.38	-3.9
OTC	26.13	10.00	PICTURETEL CORP.	25.00	1.00	4.2	OTC	23.25	12.25	VMARK SOFTWARE INC.	15.50	-3.00	-16.2
OTC	8.13	2.13	PROTEON INC.	7.75	0.13	1.6	OTC	13.25	5.50	WALKER INTERACTIVE SYSTEMS	7.63	-0.38	-4.7
OTC	14.38	2.75	RACOTEK INC.	4.63	1.13	32.1	OTC	60.00	29.25	WALL DATA INC.	39.13	1.13	3.0
OTC	11.00	3.75	RETIX	3.88	0.00	0.0	Semiconductors						
NYS	23.25	12.44	SCIENTIFIC ATLANTA INC.	21.00	1.13	5.7	NYS	32.25	20.13	ADVANCED MICRO DEVICES	31.88	1.75	5.8
NYS	44.38	36.75	SOUTHWESTERN BELL CORP.	42.88	0.00	0.0	NYS	24.50	16.34	ANALOG DEVICES INC.	22.00	0.75	3.5
NYS	40.13	25.88	SPRINT CORP.	29.50	1.00	3.5	OTC	37.63	17.94	ATEL CORP.	33.63	0.63	1.9
OTC	31.50	13.38	STANDARD MICROSYSTEMS CORP.	29.88	-0.13	-0.4	OTC	8.88	3.63	CHIPS AND TECHNOLOGIES	7.38	0.38	5.4
OTC	43.25	6.50	STRATACOM INC.	38.75	2.13	5.8	OTC	44.63	21.00	CIRRUS LOGIC	28.25	0.13	0.4
OTC	15.25	3.88	TELEBIT CORP.	4.50	-0.50	-10.0	NYS	26.88	13.88	CYPRESS SEMICONDUCTOR CORP.	25.13	1.38	5.8
OTC	55.25	24.00	US ROBOTICS	52.25	4.00	8.3	NYS	20.13	13.38	DALLAS SEMICONDUCTOR	16.38	0.75	4.8
NYS	44.88	34.63	US WEST INC.	38.88	-0.25	-0.6	OTC	31.50	14.75	INTEGRATED SILICON SYSTEMS	25.25	-2.25	-8.2
OTC	28.25	12.75	XIRCOM	16.13	0.25	1.6	OTC	73.75	56.00	INTEL CORP.	73.75	2.50	3.5
OTC	27.00	8.00	XYLOGICS INC.	24.50	-0.75	-3.0	NYS	45.63	16.75	LSI LOGIC CORP.	45.63	1.75	4.0
PCs and Workstations							UP 2.07%						
OTC	7.50	3.50	ADVANCED LOGIC RESEARCH	4.75	-0.13	-2.6	OTC	23.00	14.25	LATTICE SEMICONDUCTOR	23.00	0.25	1.1
OTC	48.00	24.63	APPLE COMPUTER INC.	41.38	1.63	4.1	NYS	47.50	22.75	MICRON TECHNOLOGY	46.25	1.25	2.8
OTC	33.00	10.38	AST RESEARCH INC.	14.75	0.50	3.5	NYS	63.13	42.13	MOTOROLA INC.	61.75	1.63	2.7
NYS	44.38	27.78	COMPAQ COMPUTER CORP.	36.63	0.63	1.7	NYS	25.00	14.38	NATIONAL SEMICONDUCTOR	19.13	1.00	5.5
OTC	47.75	19.13	DELL COMPUTER CORP.	43.63	2.13	5.1	OTC	18.75	6.75	SIERRA SEMICONDUCTOR	17.75	-0.38	-2.1
OTC	25.25	9.25	GATEWAY 2000 INC.	21.38	-0.63	-2.8	NYS	89.50	63.25	TEXAS INSTRUMENTS	73.25	3.00	4.3
NYS	107.38	71.88	HEWLETT PACKARD CO.	103.13	1.00	1.0	OTC	16.38	10.25	VLSI TECHNOLOGY	13.19	0.31	2.4
NYS	33.88	18.75	SILICON GRAPHICS	32.63	2.25	7.4	OTC	9.50	1.78	WEITEK	3.38	0.94	38.5
OTC	37.63	18.25	SUN MICROSYSTEMS INC.	33.25	0.88	2.7	ASE	20.38	11.38	WESTERN DIGITAL CORP.	15.50	-0.13	-0.8
NYS	52.38	30.75	TANDY CORP.	47.38	1.75	3.8	OTC	63.75	29.00	XILINX	61.75	2.00	3.3
OTC	11.75	2.38	ZEOS INTERNATIONAL LTD.	9.88	-0.13	-1.3	OTC	37.75	24.75	ZILOG INC.	30.50	1.25	4.3
Large Systems							UP 0.76%						
ASE	12.00	5.25	AMDAHL CORP.	10.75	0.38	3.6	OTC	30.50	14.50	AMERICAN POWER CONVERSION	16.13	0.50	3.2
NYS	8.88	4.38	CONVEX COMPUTER	6.75	-0.50	-6.9	OTC	27.25	17.25	BANCTEC INC.	17.50	-0.63	-3.4
OTC	2.75	0.50	CRAY COMPUTER	1.16	-0.09	-7.5	OTC	5.75	3.25	CAMBEX CORP.	4.00	0.25	6.7
NYS	33.75	14.63	CRAY RESEARCH INC.	15.25	0.38	2.5	ASE	5.00	1.38	COGNITRONICS CORP.	2.50	-0.13	-4.8
NYS	12.00	6.63	DATA GENERAL CORP.	8.13	-0.63	-7.1	NYS	20.50	9.00	CONNER PERIPHERALS	10.75	-0.13	-1.1
NYS	38.75	18.25	DIGITAL EQUIPMENT CORP.	35.88	3.88	12.1	OTC	24.00	9.75	CREATIVE TECHNOLOGIES INC.	12.75	-0.63	-4.7
OTC	6.38	2.44	ENCORE COMPUTER CORP.	2.56	-0.19	-6.8	OTC	11.00	3.50	DATARACE INC.	6.75	-0.25	-3.6
OTC	17.50	6.50	HARRIS COMPUTER SYSTEMS COR	13.00	0.75	6.1	ASE	8.50	4.13	DATARAM CORP.	6.88	-0.13	-1.8
NYS	77.25	51.38	IBM	75.00	3.25	4.5	NYS	24.00	12.38	EMC CORP.	17.50	-0.63	-3.4
OTC	17.25	5.00	NETFRAME	5.75	-0.13	-2.1	OTC	15.00	3.13	EMULEX CORP.	13.50	0.44	3.3
OTC	13.75	3.63	PARALLAN COMPUTER	6.63	1.25	23.3	OTC	21.00	11.25	EVANS & SUTHERLAND	12.75	-0.25	-1.9
OTC	16.00	5.38	PYRAMID TECHNOLOGY	15.75	0.00	0.0	OTC	24.00	14.00	EXABYTE	17.75	-0.50	-2.7
OTC	21.25	11.13	SEQUENT COMPUTER SYS.	16.50	-0.50	-2.9	OTC	24.25	1.88	INTELLIGENT INFO. SYSTEMS	3.50	-0.31	-8.2
OTC	6.84	3.13	SEQUOIA SYSTEMS INC.	4.06	0.31	8.3	OTC	5.50	1.59	IOMEGA CORP.	5.28	0.53	11.2
NYS	39.88	22.88	STRATUS COMPUTER INC.	27.50	-0.88	-3.1	OTC	9.75	2.00	IPL SYSTEMS INC.	3.75	1.25	50.0
NYS	19.75	10.50	TANDEM COMPUTERS INC.	18.38	0.63	3.5	OTC	29.50	17.00	KOMAG INC.	25.38	1.13	4.6
OTC	23.50	3.88	TRICORD SYSTEMS	5.00	-1.00	-16.7	OTC	8.63	2.63	MAXTOR CORP.	5.50	0.00	0.0
NYS	16.50	8.25	UNISYS CORP.	9.25	0.25	2.8	OTC	11.50	4.88	MICROPOLIS CORP.	10.06	0.19	1.9
Software							UP 2.96%						
OTC	38.50	21.50	AADOE SYSTEMS INC.	29.50	-0.63	-2.1	OTC	20.25	9.25	PINNACLE MICRO INC.	12.00	-0.50	-4.0
OTC	6.38	2.50	AMERICAN SOFTWARE INC.	2.88	0.13	4.5	OTC	28.75	4.31	PRINTRONIX INC.	18.50	-0.13	-0.7
OTC	41.50	21.88	AUTODESK INC.	34.75	1.25	3.7	NYS	10.75	6.88	QMS INC.	7.88	-0.50	-6.0
OTC	4.50	1.75	BACHMAN INFO. SYSTEMS	4.50	0.38	9.1	OTC	20.25	11.63	QUANTUM CORP.	14.69	0.44	3.1
OTC	29.00	20.50	BGS SYSTEMS INC.	25.69	1.19	4.8	OTC	18.25	7.38	RADIUS INC.	13.63	-0.75	-5.2
OTC	71.00	40.25	BMC SOFTWARE INC.	59.13	2.44	4.3	NYS	14.63	6.38	RECOGNITION INTERNATIONAL	8.00	0.00	0.0
OTC	28.50	15.00	BOOLE & BABBAGE	28.50	0.75	2.7	OTC	7.00	4.13	REXON INC.	6.50	0.25	4.0
OTC	15.13	6.00	BORLAND INT'L INC.	7.63	0.25	3.4	OTC	28.75	18.63	SEAGATE TECHNOLOGY	26.13	0.63	2.5
OTC	24.25	6.00	BROCK CONTROL SYSTEMS INC.	6.50	0.25	4.0	NYS	41.50	22.50	STORAGE TECHNOLOGY	22.50	0.63	2.9
OTC	4.00	1.78	CE SOFTWARE	3.25	0.25	8.3	NYS	40.50	24.88	TEKTRONIX INC.	33.25	-1.25	-3.6
ASE	30.34	6.25	CHEYENNE SOFTWARE INC.	14.75	0.38								



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## New switch hits

CONTINUED FROM COVER 1

technology alliance with Fore Systems, Inc. The ATM offerings will also ship in the first quarter, the sources said.

Eric Hindin, a consultant at Strategic Networks Consulting, Inc. in Rockland, Mass., said no-holds-barred competition in the high-speed switched networking arena puts pressure on everyone to deliver.

"It's a four-way horse race right now. And this is exactly what Cabletron must do if it hopes to play in the billion-dollar club with Bay, Cisco and 3Com," Hindin said. "If Cabletron fails to articulate a long-term vision and deliver on initial Synthesis products, it runs the risk of being left behind."

Hindin did applaud the fact that Cabletron is making the necessary moves to do some ATM development in-house and not rely solely on Fore Systems, Inc. in Pittsburgh.

### Good performance, reliability

Arem Still, an early beta user and a communications technician at Thomson Financial Services, Inc. in Boston, gave the ESX-1320 high marks for performance and reliability on the company's 2,000-user network. Thomson Financial has the ESX-1320 beta model on its production network where it has been running flawlessly for the past week, Still said.

"It's unusual for us to put beta devices on a production network. But the ESX-1320 has been doing exactly what it's supposed to do: It buys us a lot more speed, and it is extremely easy to install and manage. We've had no problems," Still said.

Another Cabletron user, Rick Graham, director of systems integration and planning at The Lahey Clinic in Burlington, Mass., said although he has not yet tested or seen the ESX-1320, it could be a good fit for the hospital.

The Lahey Clinic is now the third largest group practice in the U.S. since its recent merger with the Dartmouth Hitchcock Clinic in Lebanon, N.H. The combined health care network now includes 12 separate locations. Deploying the stand-alone ESX-1320 would be technically and financially more feasible than continued use of large modular Cabletron hubs at satellite offices, Graham explained.

"A 13-port stand-alone Ethernet switch would be appropriate for us to use in smaller sites that don't need the large modular MMAC hubs. We're currently deploying MMAC hubs at smaller offices, and that's not the most efficient solution," Graham said.

Some users and analysts, however, were more critical of the Synthesis rollout.

"Cabletron is a major player, but it faces a major challenge in ensuring the loyalty of its installed base will be there over the next two years," said Charlie Robbins, a vice president at Aberdeen Group in Boston. "I'm really concerned that this massive plan for the next two years will leave their base open to attack."

That was the case with former Cabletron site Wisconsin Power & Light Co. in

Madison, which recently switched its allegiance to Bay Networks. "We have to marry router technology to ATM switches, and obviously [Bay Networks] is in good position to do that," said telecommunications engineer Steve Johnston.

Others are more patient.

"We believe Cabletron switching will be true switching when it comes out, so we're willing to wait," said Pat Boyd, a network engineer at MMAC-Plus beta site Duke University in Durham, N.C. Boyd was referring to Cabletron's much-anticipated third-quarter release of its Secure Fast Packet Switching (SFPS) technology for its MMAC-Plus enterprise hub.

When SFPS ships, it will include Ethernet, Token Ring, Fiber Distributed Data Interface (FDDI) and ATM SFPS modules for the MMAC-Plus. These will provide switching performance in excess of 5.6 million packet/sec. and an aggregate bandwidth of 9G bit/sec., product manager Dave Cullerot said.

SFPS will enable MMAC-Plus modules to accept variable-size LAN packets and translate them into fixed-length cells for switching across the MMAC-Plus backplane. This will make the MMAC-Plus a true switching hub.

**"It's a four-way horse race right now. And this is exactly what Cabletron must do if it hopes to play in the billion-dollar club with Bay, Cisco and 3Com."**

**— Eric Hindin  
Strategic Networks Consulting**

## The lowdown on the ESX

**D**ue out next month from Cabletron, the ESX-1320 is a stand-alone device equipped with 12 switched Ethernet ports. The 13th port can be used as either a high-speed 100M bit/sec. FDDI port, a 100M bit/sec. ATM TAXI port and a wide-area port.

It will incorporate two Intel Corp. i960 RISC processors. The ESX-1320 delivers aggregate bandwidth of 250M bit/sec. and throughput of more than 50,000 packet/sec., the sources

said. The switch will also support the Simple Protocol for ATM Networks (SPAN), making it interoperable with all Fore Systems ATM devices as well as the UNI 3.0 and LAN emulation specifications, sources said.

The ESX-1320 also supports the following:

- Full-duplex Ethernet.
- Integrated Remote Network Monitoring.
- Distributed LAN Monitor.

An OC-3 155M bit/sec. ATM interface will be available in the second quarter, sources said. The ESX-1320

will cost \$12,995.

Also in the offing is a set of modules that will integrate Cabletron's Spectrum network management capabilities into AT&T Corp.'s G-3 premises-based exchange telephone system. The Spectrum module for the AT&T G-3 system, due out in the second quarter, will let network administrators access statistical information from their voice and data networks from a single Spectrum station.

**— Laura DiDio and  
Stephen P. Klett Jr.**

## Kodak snaps

CONTINUED FROM COVER 1

information systems director for the division.

Under the mobile scheme, reps will have on-the-road access to a single data warehouse containing continuously refreshed information — including data about customer preferences. Users can replicate the warehouse on their portables via a newly developed Notes application.

"What this will do is allow the sales force to operate in total disconnect mode," Neitsche said.

Portable computers are not entirely new to Kodak's salespeople. About 120 of the division's 350 reps already have Apple Computer, Inc. PowerBooks. Nonetheless, "the bulk of people have been using a desktop, and most of them work from their home" to dial up for data, said John Altberg, a regional manager and vice president in Kodak's San Francisco sales office.

Kodak hopes to change this at-home quest for data by employing Lotus Development Corp.'s Notes groupware as a front end to its customer information database. Under the Notes application, users will no longer need to dial in each time they need to review customer or technical information. Rather, they will dial in once and replicate updated information on their PowerBooks, which will come with a 500M-byte hard disk for storage.

"It is the replication abilities of Notes that we are driving for," Neitsche said. "We need to replicate the data on the laptop of the rep and in the central database, and Notes provides us with that capability."

The new customer information system comprises an Oracle Corp. database running on a Unix-based Sun Microsystems, Inc. server. Data is pumped from this server to

a dedicated Notes server that sales reps can access from their notebook computers. The notebooks also include Microsoft Corp.'s PowerPoint, Excel and Word applications.

Salespeople will have access to a broad base of information, ranging from sales reports to individual customers' film, camera and processing preferences. This data will be available under a system called Pro Passport.

Under the new system, the Pro Passport data — collected directly from the customers via questionnaires and various coupon and rebate programs — will be available to reps on the Notes server.

"Access to this kind of data will allow us to clearly identify where significant customers are that we haven't been astute about contacting in the past," Altberg said.

### Reluctant users

The Kodak move is similar to one under way at archrival Xerox Corp., which is using a sales force automation project to revitalize its own flagging profits [CW, 10/31/94]. How quickly and easily Kodak's sales reps take advantage of their mobile capabilities remains to be seen.

"One of the things that has been a challenge to sales force automation so far is that salespeople in general are very reluctant to use technology," noted Hugh Bishop, an analyst at Aberdeen Group in Boston. "Training the sales force to use the technology efficiently is just as important as the functionality of the software itself."

Neitsche said IS is addressing this issue at Kodak by first training salespeople who already function as resident computer experts in their respective offices. Training computer-literate people first "buys us the opportunity to do last-minute tweaks on the system. They can then go back and sell it to the other reps."

## Xerox hires new VP, CIO

By Julia King

Xerox Corp. recently promoted Lori Groves to vice president and chief information officer at its newly reorganized U.S. Customer Operations in Rochester, N.Y.

A 20-year Xerox veteran and longtime operations manager, Groves replaces Laraine Rodgers, who left Xerox in November to become vice president of information processing at Bell Atlantic Corp.

During the past few years, the \$15 billion company has made a series of management shuffles to better align internal operations with its customer base. Last week's reorganization calls for the

consolidation of 65 sales districts and 77 service districts into 37 customer business units.

As CIO, Groves will oversee several systems now being developed to support the new business units. These include a global marketing customer database and a solutions and services database, which Xerox staffers will use as a sort of expert system to solve various customer problems.

"Rather than have an account manager have to reinvent a solution to a problem each time it comes up, we're going to have a database of ideas that were used and that worked for other Xerox managers," Groves said.





## How do you spell that???

Spell checkers are not the end-all for proofing documents, as we know well. Some examples include interesting replacements for "Virginia," "Pentium" and "Angus" that we cannot print here. If your spell checker has produced some eye-opening and crazy suggestions, send them our way! If your item is used, you will receive a gift. Send responses to Tim Ouellette on the Internet at [touel@cw.com](mailto:touel@cw.com), or call (800) 343-6474, x215.

### If my PC workspace was an airline ...

#### Macintosh Airline

All the stewards, stewardesses, captains, baggage handlers and ticket agents look the same, act the same and talk the same. Every time you ask questions about details, you are told you don't need to know, don't want to know and that everything will be done for you, so just shut up.

#### Windows Airline

The airport terminal is nice and colorful, with friendly stewards and stewardesses, easy access to the plane and a completely uneventful takeoff ... then, once in the air, the plane blows up without any warning whatsoever!

Source: Yahoo - A Guide to the World-Wide Web (<http://akebono.stanford.edu/yahoo>)



For employers looking for a way to limit game playing at work, a new software package called **GameCop** monitors active windows on a PC to see if a game is running. The software, from Analytic Concepts in San Jose, Calif., provides a customizable message that warns the employee to get back to work. It has an optional alarm to embarrass the user in front of the whole office.

WYSIWYG COMPILED BY TIM OUELLETTE; ILLUSTRATIONS BY DAVID MARSHALL

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## Inside Lines

### Mail-order maladies

Compared with some of the flak that mail-order vendor Zeos International is getting these days on the Internet, Intel almost had an easy time. Furious users have been ripping into the vendor for the past few weeks for a variety of reasons, running the gamut from faulty systems to unreliable components and a near-total lack of responsiveness to customer complaints. Zeos has become the latest in a growing number of companies threatened with class-action suits. Already facing such suits are Intel, superserver vendor NetFrame Systems and possibly Gateway 2000. Zeos did not respond to calls about the complaints.

### Step away from that printer!

With an eye toward preventing an Intel Pentium-style PR disaster, Hewlett-Packard last week issued a recall for 10,000 OfficeJet ink-jet printers. HP discovered that a fault in the power supply for the \$900 device can cause powerful electric shocks and notified the U.S. Consumer Product Safety Commission. "There were no customer calls, and no one's been injured," an HP spokeswoman said.

### Polishing up its image

NEC Technologies, which is busily trying to gain an early lead in the Pentium market, is set to unwrap a line of powerful multimedia, Pentium-based systems later this month. According to sources close to the company, the new systems will top NEC's Image Pentium Series, which targets corporate users. The announcements will include single- and dual-processor configurations based on the 100-MHz Pentium processor and will feature 32-bit PCI local bus video, hardware graphics acceleration, fast video memory and business audio.

### The pace o' progress

President Clinton may not be able to get a \$40 million Mexican aid package through Congress, but your PC can get through to Mexico. A San Diego firm last week started Mexico Online, an electronic service similar to CompuServe, according to a Mexico Online systems operator. The service provides members with chat groups and data on business activities south of the border. For a free taste of the whole enchilada, log on to (619) 698-5753.

### Try doing it at night instead

Siloooooooooooo is the word for what it's like to download free versions of Oracle's new desktop databases and tools from the company's Web site. One Internet user reported a 12-hour wait for transmitting Oracle's 16M-byte Personal Oracle 7 file on a 14.4 bit/sec. modem. "Demand has exceeded all our expectations [and] connections are slow," acknowledged Mark Jarvis, senior director of network products at Oracle. The company is trying to replace its T-1 lines with faster T-3s.

### Slipped disks, Armonk-style

Times certainly have changed in the mainframe disk storage market. Who'd have thought that IBM would ever have to make a point of letting everyone know that it is still top dog, as it did last week in a press release on shipment levels for its new RMAC RAID arrays. But IBM's market share slid from 68% to 46% during the last three years, while upstart EMC's zoomed from 4% to 28%, according to International Data Corp.

*While the dreaded term mainframe has mostly been banished from IBM's lexicon in favor of the more trendy server, the folks at Amdahl are not shying away from using the M-word with customers. "If it walks like a duck and looks like a duck, it might actually be a duck," said Henry Cassel, head of marketing for Amdahl's mainframe business. Of course, the mainframe unit at Amdahl is officially known as Compatible Systems... But if you happen to have some compatible information or news tips for Computerworld to pursue, do call our 24-hour voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News editor Maryfran Johnson can be reached by phone at (508) 820-8179, via the Internet at [mjohnson@cw.com](mailto:mjohnson@cw.com).*



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